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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHAEL S. BECK, JON T. STINCHCOMB,
WENDELL H. CHUN, DONALD W. NIMBLETT,
JAMES E. TOMLIN, and KEVIN L. CONRAD

Appeal 2010-006681
Application 11/609,517
Technology Center 3600

Before JAMES P. CALVE, JILL D. HILL, and
BEVERLY M. BUNTING, *Administrative Patent Judges*.

CALVE, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from the rejections of claims 1, 3, 7, 9, 12, 31, 37, 39, 44, 47, 48, 56, 66, 73, and 78-90. App. Br. 2.[1] Claims 2, 4-6, 8, 10, 11, 13-15, 17-24, 26-30, 32-36, 38, 40-43, 46, 49, 52-55, 57, 59-63, 65, 68-72, and 74-77 are cancelled. Claims 16, 25, 45, 50, 51, 58, 64, and 67 are allowed. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

CLAIMED SUBJECT MATTER

Claims 1, 39, 48, 78, 80, 83, 89, and 90 are independent. Claim 1 is reproduced below:

> 1. A vehicle, comprising:
> a chassis; and
> a plurality of wheel assemblies articulated with the chassis, each of the plurality of wheel assemblies including:
> a rotatable wheel spaced away from the chassis and independently rotatable above the plane of the vehicle;
> a shoulder joint rotatably joining the wheel assembly to the chassis,
> wherein at least two of the shoulder joints define an axis through the chassis that is not aligned with the center of gravity for the vehicle.

REJECTIONS

Claims 1, 3, 7, 9, 12, 31, 37, 39, 44, 47, 48, 56, 66, 73, and 78-80 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ross (4,056,158; iss. Nov. 1, 1977).

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[1] Refers to Corrected Appeal Brief, filed Aug. 24, 2009.

Claims 78-88 and 90 are rejected under 35 U.S.C. § 102(b) as being anticipated by Wilcox (US 6,267,196 B1; iss. Jul. 31, 2001).

Claim 89 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Wilcox.[2]

ANALYSIS

Claims 1, 3, 7, 9, 12, 31, 37, 39, 44, 47, 48, 56, 66, 73, and 78-80 anticipated by Ross

Appellants argue claims 1, 3, 7, 9, 12, 31, 37, 47, 48, 56, 66, and 73 as a group, claims 39 and 44 as a group, claims 78 and 79 as a group, and claim 80 separately. App. Br. 6-7; Reply Br. 1-4. We select claims 1, 39, 78, and 80 as representative, respectively. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2011).

Claims 1, 3, 7, 9, 12, 31, 37, 47, 48, 56, 66, and 73

The Examiner found that Ross discloses a rough terrain vehicle with a frame 1, a plurality of wheel assemblies that are able to articulate, and a rotatable wheel 11, 7, 9 able to articulate and rotate about a plain. Ans. 3. The Examiner found that Figures 1 and 2 show that the wheel assemblies are independently rotatable due to changes in elevation on the ground and each wheel has a hydraulic motor to independently rotate it. Ans. 5.

Appellants argue that Ross does not disclose a wheel or wheel assembly that is independently rotatable or articulable and it is apparent that the front pairs of wheels and back pair of wheels in Figure 4 articulate in pairs rather than independently. App. Br. 6-7. Appellants argue that none of Ross's wheel assemblies independently articulate or rotate because wheels 7, 9 are mounted to a common suspension beam 2 that is mounted to a chassis

[2] The Examiner indicated that Appellants' arguments regarding this rejection overcome the rejection. Ans. 6. Therefore, we do not review this rejection.

at a pivot 3 such that wheel 7 cannot articulate relative to the chassis without the wheel 9 also articulating. Reply Br. 2. Appellants also argue that an identical arrangement exists for the rear wheels. Reply Br. 2-3. Appellants further argue that the Office Action confuses a "wheel assembly" with a "wheel" and while a "wheel assembly" includes a "wheel", a "wheel" is not a "wheel assembly. Reply Br. 3. Appellants assert that the claims refer to rotation of the "wheel assembly" as a whole. Reply Br. 4.

We agree with the Examiner that Ross discloses wheel assemblies (front wheels 7, 9 and hydraulic motors 20, 21 and suspension beam 2; rear wheels 11, 11a and motors 22 and suspension beams 4) that have rotatable wheels (7, 9 and 11) and these wheel assemblies are independently rotatable relative to the plane of the vehicle as shown in Figures 1 and 2. *See* Ans. 5. Appellants' arguments do not persuade us of error in those findings. We sustain the rejection of claims 1, 3, 7, 9, 12, 31, 37, 47, 48, 56, 66, and 73.

<u>Claims 39 and 44</u>

Claim 39 recites a vehicle with a chassis and an articulated suspension system mounted to the chassis and including a plurality of elements that may be independently articulated. The Examiner found that Ross discloses an articulated suspension system including a plurality of elements that may be independently articulated as shown in Figure 1 where front wheel assemblies 7, 9 are articulated to contact an ascending surface and back wheel assembly 11 is articulated to contact a second descending opposing surface. Ans. 3, 5.

Appellants argue that none of Ross's four wheel assembly articulates independently because wheel 7 cannot articulate relative to the chassis without wheel 9 also articulating. Reply Br. 2. Appellants also argue that the articulation of the rear wheels 11, 11a is interdependent because Ross

discloses that as one wheel rises the other falls by virtue of the two hydraulic cylinders 16, 16a that are hydraulically connected in parallel. Reply Br. 2-3.

We agree with the Examiner that Ross discloses a suspension system with a plurality of elements that may be independently articulated as shown in Figures 1 and 2 where front wheel assemblies including wheels 7 and 9 are articulated to contact an ascending surface while a rear wheel assembly (wheel 11) contacts a second descending surface. Ans. 5. Appellants have not persuaded us of error in the Examiner's findings. We sustain the rejection of claims 39 and 44.

Claims 78 and 79

Claim 78 recites a method of maneuvering a wheeled vehicle by articulating the suspension system so a first wheel contacts a first surface and a second wheel and a third wheel contact a second surface opposing the first surface. The Examiner found that Figure 2 of Ross shows the vehicle touching a first surface with the first wheel 11 before the bump and a second surface with the second and third wheels 7, 9 on the bump and after. Ans. 3-4, 5. Appellants argue that Ross does not teach that the two surfaces are opposing and it can be clearly seen from Figure 1 that they are not. App. Br. 7. Appellants assert that the Examiner refers to ascending and descending grades of a single illustrated surface that defines the negative obstacle, i.e., a ditch that the vehicle is traversing. Reply Br. 5. Appellants also argue that Appellants' Specification establishes that the term "opposing" means that the forces generated through the wheel assemblies work against each other to maintain the vehicle's position between the two surfaces as the wheels propel the vehicle through the space defined by the surfaces and that is clearly not the case in Figure 1 of Ross. Reply Br. 6.

We agree with Appellants that Ross does not disclose articulating a suspension system so that a first wheel contacts a first surface and a second and a third wheel contact a second surface that is opposing the first surface. The Examiner's finding that Ross's inclined ascending and descending surfaces are "opposing" surfaces is inconsistent with the plain meaning of the term "opposing" interpreted in light of Appellants' Specification. An ordinary, customary meaning of "opposing" includes "[t]o move so as to be opposite something else; place in contraposition." *See* THE AMERICAN HERITAGE® DICTIONARY OF THE ENGLISH LANGUAGE, New College Edition (1976). Appellants disclose an embodiment in which the vehicle 200 is configured with wheel assemblies 202b, 202d, 202f rotated so that wheels 216b, 216d, 216f contact a first surface and wheel assemblies 202a, 202c, 202e rotated so that wheels 216a, 216c, 216e contact a second surface and these surfaces are generally vertically-oriented opposing surfaces. Spec. 31, ll. 8-19; fig. 25. We cannot sustain the rejection of claims 78 and 79.

<u>Claim 80</u>

Claim 80 recites a method for controlling a wheeled vehicle having an articulated suspension system comprising articulating the suspension system to inhibit rollover of the vehicle. Appellants argue that Ross nowhere mentions inhibiting rollover through articulation of the suspension system, nor it is inherent in the construction or operation of the vehicle. App. Br. 7. The Examiner has not made any findings demonstrating that Ross discloses such a method. We cannot sustain the rejection of claim 80.

Claims 78-88 and 90 anticipated by Wilcox

Regarding claim 78, which recites articulating the suspension system so a first wheel contacts a first surface and a second wheel and a third wheel

contact a second surface opposing the first surface, the Examiner found that Wilcox discloses a high mobility vehicle with wheels on one surface and other wheels on a second surface. Ans. 4 (citing fig. 4). In particular, the Examiner found that Figure 4 of Wilcox shows two different level surfaces that vertically oppose each other with one surface being on a different plain than the other one. Ans. 5. The Examiner also found that Wilcox's vehicle can articulate each wheel assembly to be at different heights (figs. 4-10) so that each of the wheels could be placed on different surfaces due to the rotation of each arm 40, 60. Ans. 5-6.

Appellants argue that two different grades in a single surface do not constitute different surfaces and there is no indication that Wilcox ever controls the articulation of wheels relative to two opposing surfaces. Reply Br. 6-7. We agree. The Examiner has not established by a preponderance of evidence that Wilcox discloses a method for maneuvering a wheeled vehicle by articulating the suspension system so that a first wheel contacts a first surface and a second and third wheel contacts a second surface that is opposing the first surface. The Examiner's finding that obstacle 130 and surface 212 are opposing surfaces is inconsistent with the plain meaning of the term "opposing" interpreted in light of Appellants' Specification for the same reasons discussed *supra* for the rejection of claim 78 based on Ross. We cannot sustain the rejection of claims 78 and 79.

Claim 80 recites a method for controlling a wheeled vehicle having an articulated suspension system comprising articulating the suspension system to inhibit rollover of the vehicle. The Examiner found that Wilcox discloses this method by rotating the shoulders to inhibit the vehicle from rotating. Ans. 4, 6. Appellants argue that Wilcox does not teach inhibiting rollover.

App. Br. 8. Appellants also argue that Figures 9 and 10 do not disclose inhibiting rollover because they depict a portion of a process for inverting the body of the vehicle. Reply Br. 8-9.

We agree with the Examiner that Wilcox discloses a method of articulating the suspension system of a wheeled vehicle to inhibit rollover of the vehicle. Figure 9 discloses an articulation of the suspension system that affects the center of gravity of the vehicle by lowering the center of gravity which would inhibit rollover of the vehicle. Wilcox also discloses that the center of gravity (C_g) of the vehicle can be lowered by articulation of the suspension system as shown in Figures 4 and 5. We sustain the rejection of claims 80-82.

Claims 83-88 are argued as a group. App. Br. 7-8. We select claim 83 as representative. Claim 83 recites articulating the suspension system to reduce the target detection area or footprint of the vehicle. The Examiner found that Wilcox can lower the chassis by articulating the suspension (shoulders) so that the detection area and spatial attitude are changed and the area of the vehicle is reduced. Ans. 4. The Examiner found that Figures 5, 7, and 8 disclose articulation of the main body of the vehicle to reduce the detection area or footprint of the vehicle. Ans. 6. Appellants argue that Wilcox illustrates that the entire side of the vehicle may be lowered or raised relative to the ground surface but there is no disclosure that articulation of the body such as illustrated in Figures 7 and 8 of Wilcox reduces the detection area. Reply Br. 9-10. Appellants also argue that whether any particular articulation results in a target detection area reduction depends on the targeter's perspective and the technology used in the detection. Reply Br. 10.

We agree with the Examiner that Wilcox discloses a method of articulating the suspension system to reduce the target detection area or the footprint of the vehicle as shown by comparing vehicle profiles in Figures 5 and 7-10. We sustain the rejection of claims 83-88.

Regarding claim 90, the Examiner found that Figures 9 and 10 of Wilcox disclose the recited subject matter of articulating the wheels above the belly plane of the chassis so that the chassis contacts the surface to brake the vehicle. Ans. 4. Appellants argue that Wilcox discloses that the chassis can be lowered so that its bottom can touch the ground but does not disclose that this can be done while the vehicle is in motion. Reply Br. 11 (citing col. 6, ll. 7-17). The Examiner's finding that Wilcox is capable of articulating the wheels above the belly plane of the vehicle's chassis so that the chassis contacts the surface to brake the vehicle is not supported by a preponderance of evidence. Although Wilcox discloses that the chassis can be lowered to contact the surface, Wilcox discloses that this articulation may be done for taking soil samples or performing other operations and "[t]he body 12 may then be raised to resume movement." Col. 6, ll. 8-13. We cannot sustain the rejection of claim 90.

DECISION

We AFFIRM the rejection of claims 1, 3, 7, 9, 12, 31, 37, 39, 44, 47-48, 56, 66, and 73 and REVERSE the rejection of claims 78-80 as being anticipated by Ross.

We AFFIRM the rejection of claims 80-88 and REVERSE the rejection of claims 78, 79, and 90 as being anticipated by Wilcox.

AFFIRMED-IN-PART

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