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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte GO NAGAYA

Appeal 2011-000197
Application 10/530,180
Technology Center 3600

Before LINDA E. HORNER, JOHN W. MORRISON, and SCOTT E. KAMHOLZ, *Administrative Patent Judges*.

HORNER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Go Nagaya (Appellant) seeks our review under 35 U.S.C. § 134 of the Examiner's decision rejecting claims 1-6. We have jurisdiction under 35 U.S.C. § 6(b). An oral hearing was held on January 10, 2013.

We REVERSE.

THE INVENTION

Appellant's claimed invention "relates to an in-wheel motor system for a steering wheel for use in a vehicle having direct drive wheels as steering wheels." Spec. 1. Claim 1, reproduced below, is the sole independent claim and is representative of the subject matter on appeal.

> 1. An in-wheel motor system for mounting a direct drive motor to a wheel, comprising
>
> a first knuckle which is connected to an upper suspension arm, a lower suspension arm and a non-rotary side of the direct drive motor, and is locked in a steering direction; and
>
> a second knuckle which is connected to a steering rod and to the first knuckle in such a manner that the second knuckle turns on a king pin axis in the steering direction and is fitted with a brake unit and the wheel.

THE EVIDENCE

The Examiner relies upon the following evidence:

Tenney	US 1,780,370	Nov. 4, 1930
Herreshoff	US 2,635,704	Apr. 21, 1953
Nelson	US 3,468,389	Sep. 23, 1969
Baker	US 3,472,331	Oct. 14, 1969
Wahlmark	US 3,818,721	Jun. 25, 1974
Miki	US 4,504,099	Mar. 12, 1985
Mazziotti	US 4,541,819	Sep. 17, 1985
Iizuka	US 5,224,563	Jul. 6, 1993
Kudo	US 5,791,995	Aug. 11, 1998

THE REJECTIONS

Appellant seeks review of the following rejections:

1. Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Baker and Iizuka.

2. Claim 1 is also rejected under 35 U.S.C. § 103(a) as being unpatentable over Baker, Iizuka, and Tenney.
3. Claims 2-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Baker, Iizuka, and Nelson.
4. Claims 2-6 are also rejected under 35 U.S.C. § 103(a) as being unpatentable over Baker, Iizuka, Tenney, and Nelson.[1]

ISSUES

Appellant argues that "Baker discloses only one knuckle (a spindle knuckle) and does not disclose and suggest the first knuckle according to the present invention." App. Br. 10-11. *See also* App. Br. 13 ("Baker does not teach or suggest a first knuckle which is connected to an upper and lower suspension arm" and "Baker does not disclose or suggest a knuckle that is divided into two parts").

In each of the rejections of claim 1, the Examiner determined that Baker discloses:

> an arrangement for the driving of a steerable wheel (42) including a first knuckle (proximate 122) which does not turn and is locked in a steering direction (e.g., at least through the connection at 124, 132, 134), and which is connected to an upper suspension arm (22), a lower suspension arm (24) and to a non-rotating vehicle portion and . . . a second knuckle (19, 21, 82, 85) which is steerable, pivotally mounted with respect to the first knuckle about a king pin axis (Y) . . . .

[1] According to the Examiner, "[t]he references to Herreshoff, Wahlmark, Miki et al., Mazziotti, and Kudo et al. have been relied upon as documentary evidence to support assertions by the examiner that certain features are old and well known." Ans. 8. *See also* Ans. 9, 11-12.

Ans. 4-5. The rejections of dependent claims 2-6 also rely on the Examiner's determination that Baker discloses a first knuckle as called for in independent claim 1. Ans. 6-7.

The issue presented by this appeal is whether Baker discloses "a first knuckle" as called for in independent claim 1.

ANALYSIS

The rejection states that Baker discloses "a first knuckle (proximate 122)." Ans. 4. We cannot discern from this vague finding exactly what portion of Baker's arrangement the Examiner determined corresponds to the claimed "first knuckle." It appears from the rejection that the Examiner does not consider the king pin 122 itself to be the first knuckle; rather the Examiner determined that a structure in Baker's arrangement located "proximate" king pin 122 corresponds to the "first knuckle."[2] We examined Baker's arrangement, and in particular, the portions of the arrangement located proximate king pin 122, and could not discern any portions that appear to correspond to the "first knuckle" of claim 1.

Baker discloses a pivot means for mounting a driven axle for horizontal movement with respect to a driver axle. Baker, col. 1, ll. 18-20. Baker discloses:

[2] If the Examiner considered king pin 122 to correspond to the claimed "first knuckle," we disagree. We agree with Appellant (Reply Br. 5, n.1) that a king pin is not a knuckle. Further, king pin 122 is located only in bore 124 of upper yoke arm 22 and is not connected to lower yoke arm 24 as called for in claim 1.

> This pivot means comprises a yoke arm arrangement which insures substantially equal loading to both the upper and lower yoke and bracket arms and a resilient deformable dampening and bearing means disposed between the king pin bearings and the yoke arms to suppress vibration and provide anti-shimmy characteristics to the steering drive axle assembly.

Baker, col. 1, ll. 20-27.

In particular, Baker discloses a steering drive axle assembly 10 including an axle housing 12 secured to a suspension yoke 14 through both of which extends a shaft extension 16 of the driving axle. Baker, col. 3, ll. 1-5. The suspension yoke 14 includes upper and lower yoke arms 22 and 24. Baker, col. 3, ll. 18-19. A universal joint 26 is disposed between the yoke arms 22 and 24 for easy connection to a driven axle shaft 28. Baker, col. 3, ll. 20-23. The shaft 28 is rotationally supported by bearings 30 disposed in a wheel bearing spindle 32. Baker, col. 3, ll. 23-25.

> A pair of bracket arms **80** and **82** formed by a wheel yoke or wheel spindle knuckle **81**, extend axially towards the driving axle shaft extension **16** and are fixed for rotation with the wheel bearing spindle **32**. These bracket arms provide for seating of a pair of king pin bearings assemblies **19** and **21**, respectively, for pivotal attachment of the wheel bearing spindle **32** to the axle housing **12**.

Baker, col. 4, ll. 26-32. "The wheel yoke **81** is fixed for rotational movement with the wheel bearing spindle **32** . . . ." Baker, col. 4, ll. 41-43.[3]

[3] The Examiner determined that the wheel spindle knuckle 81, including bracket arms 80 and 82, and the king pin bearings assemblies 19 and 21 correspond to the "second knuckle" which is steerable and pivotally mounted with respect to the first knuckle about a king pin axis (Y). Ans. 4.

"[A] bore **124** in the upper yoke arm **22** is threaded for receipt of a bushing **126**, the said bushing having threads **128** engaged with the threads in the bore **124**." Baker, col. 5, ll. 35-38.

> A nut **132** which is screwed on a threaded portion **134** of the king pin **122** pulls the assemblage of the king pin **122**, bushing **126** and upper yoke arm **22** tightly together. By this arrangement the nut **132** draws the king pin **122** up tight against the bushing **126** within the yoke arm **22** so as to rigidify its assembly to the yoke arm.

Baker, col. 5, ll. 40-46.

To the extent that the Examiner determined bushing126, which is located proximate king pin 122, corresponds to the "first knuckle," we disagree. Bushing 126 is located only in the bore 124 of the upper yoke arm 22, while claim 1 calls for the first knuckle to be connected to both the upper suspension arm and the lower suspension arm. While bushing 126 is connected to the upper yoke arm 22 of Baker, it does not appear to be connected to the lower yoke arm 24.

To the extent that the Examiner determined the end portion of upper yoke arm 22 that contains bore 124, which is proximate king pin 122, corresponds to the "first knuckle," again we disagree. Claim 1 calls for the first knuckle to be "connected to an upper suspension arm." The Examiner determined the upper yoke arm 22 corresponds to the claimed "upper suspension arm." As such, the end portion of upper yoke arm 22 which contains bore 124 cannot be the first knuckle because this end portion is an integral portion of upper yoke arm 22 and it cannot be connected to itself.

We agree with Appellant that the Examiner has not established by a preponderance of the evidence that Baker discloses "a first knuckle" as called for in claim 1. Accordingly, we reverse both grounds of rejection of claim 1 and both grounds of rejection of dependent claims 2-6, each of which rely on the unsupported finding that Baker discloses the claimed "first knuckle."

CONCLUSION

The Examiner has not established by a preponderance of the evidence that Baker discloses "a first knuckle" as called for in independent claim 1.

DECISION

We REVERSE the decision of the Examiner to reject claims 1-6.

REVERSED

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