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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANTHONY BARATTA, PETER ZETTERLIND, and ANDREAS JÖNSSON

Appeal 2020-000329
Application 14/880,569
Technology Center 3700

Before BRETT C. MARTIN, BRANDON J. WARNER, and LEE L. STEPINA, *Administrative Patent Judges.*

STEPINA, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM IN PART.

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[1] We use the word Appellant to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Husqvarna AB. Appeal Br. 1.

CLAIMED SUBJECT MATTER

Appellant's invention is directed to a chainsaw usable for cutting concrete.

Claim 1, reproduced below with emphasis added, is the sole pending independent claim.

> 1. An interchangeable concrete cutting chainsaw cutting assembly adapted for installation upon a drive assembly in exchange for a removed, different type cutting head assembly, said chainsaw cutting assembly comprising:
>
> a housing having fasteners that releasably attach said housing to a drive assembly in an installed configuration;
>
> a ratio transmission comprising a plurality of interconnected rotatable members, each rotatable member having a mounting shaft positioned at a fixed location on said housing by a bearing assembly;
>
> *said plurality of rotatable members comprising a round, disk-shaped driven member and a round, disk-shaped cutting chain drive member, said driven member having a circumference at least twice as long as a circumference of the cutting chain drive member*;
>
> said driven member having a receiver that interconnects with a driveshaft of the drive assembly in the installed configuration whereby said driven member is rotated by the drive assembly;
>
> a chain bar attached to said housing;
>
> a drive sprocket and nose sprocket, at least one of which is rotatably mounted on said chain bar and a cutting chain suspended on said drive sprocket and nose sprocket for circulation about said chain bar; and
>
> said cutting chain drive member operatively interconnected with said drive sprocket whereby rotation of said cutting chain drive member rotates said drive sprocket.

Appeal Br. 13 (Claims App.).

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Dunn	US 855,237	May 28, 1907
Michie	US 2,776,575	Jan. 1, 1957
McNulty	US 3,545,422	Dec. 8, 1970
Weisner	US 4,181,115	Jan. 1, 1980
Marshall Brain, *How Gear Ratios Work*, HowStuffWorks, https://auto.howstuffworks.com/gears.htm/printable[2] (hereinafter "Gear Ratios")[3]		

REJECTIONS

I. Claims 1, 2, 5, and 7–17 are rejected under 35 U.S.C. § 103(a) as unpatentable over McNulty and Gear Ratios.

II. Claim 6 is rejected under 35 U.S.C. § 103(a) as unpatentable over McNulty, Gear Ratios, and Michie.

III. Claims 3, 4, and 18 are rejected under 35 U.S.C. § 103(a) as unpatentable over McNulty, Gear Ratios, and Dunn.

IV. Claims 19 and 20 are rejected under 35 U.S.C. § 103(a) as unpatentable over McNulty, Gear Ratios, and Weisner.

[2] The only date displayed on this reference (September 28, 2018) appears to be the date the Examiner printed it. Appellant does not dispute that this reference qualifies as prior art. *See* Appeal Br.

[3] The Examiner refers to this reference as either "HowStuffWorks" or "HowStuffWorks Gear Ratios," and Appellant refers to it as "Gear Ratios." *See* Non-Final Act.; Ans.; Appeal Br.; Reply Br.

OPINION

Rejection I–McNulty and Gear Ratios

Claims 1, 2, 5, 8–10, and 12–17

The Examiner finds that McNulty discloses many of the elements recited in claim 1, including a ratio transmission (reduction gear and oscillating gear housing 11) having a drive member and a driven member, but does not disclose that driven member has a circumference at least twice as long as a circumference of the drive member. Non-Final Act. 3. To address this deficiency, the Examiner finds Gear Ratios "teaches wherein gear ratios are generally used for different reasons: to reverse direction of rotation, increase or decrease speed of rotation, to move rotational motion to a different axis or to keep rotation of two axis synchronized." *Id.* The Examiner also finds Gear Ratios teaches a gear ratio of 2:1. *Id.* at 3–4. The Examiner reasons that it would have been obvious "to modify the reduction gears of McNulty to a ratio of 2:1 or having a circumference of the driven gear being twice as long as the circumference as the drive gear as taught by [Gear Ratios] in order to optimize the gear reduction for the necessary application." *Id.* at 4.

Appellant argues (i) "McNulty does not disclose anything related to the structure of the reduction gears (i.e., the alleged driven member and cutting chain drive member), much less anything related to the circumference of the alleged driven member in relation to the alleged cutting chain drive member*"* and (ii) "similarly to McNulty, Gear Ratios also does not disclose anything related to the structure of the driven member in relation to the structure of the cutting chain drive member." Appeal Br. 5. According to Appellant, "Gear Ratios shows only some disembodied gears

but neither Gear Ratios nor the Examiner has provided any context on how those gears relate to the claimed drive member and cutting chain drive member." *Id.*

In response, the Examiner notes that McNulty discloses that gear housing 11 includes reduction gears, and, that Gear Ratios teaches a 2:1 gear ratio as well as that gear ratios are used for various reasons, including to reduce speed of rotation. *See* Ans. 12–13. In light of these teachings, the Examiner reiterates that providing the claimed gear ratio, in which the driven member has a circumference at least twice as long as a circumference of the cutting chain drive member, would have been an obvious matter of optimization to one of ordinary skill in the art. *See id.*

In reply, Appellant asserts that the Examiner's response "seems to suggest that Gear Ratios actually teaches a driven member having a diameter twice that of a drive member. However, this is not the case. Neither Gear Ratios nor McNulty disclose a driven member and a drive member, much less the structural relationship between the two." Reply Br. 3. According to Appellant, "the Examiner has provided support only for that one gear may be larger than another gear but no support for the feature of the driven member having a circumference at least twice as long as a circumference of the cutting chain drive member." *Id.* (emphasis omitted).

We disagree with Appellant's argument for the following reasons. First, a person of ordinary skill in the art would understand that McNulty's reduction gear and oscillating gear housing 11 includes a drive gear and at least one driven gear based on the disclosed function of this component. "Attached to the motor housing 10 is a reduction gear and oscillating gear

housing 11 retaining reductions gears for reducing the speed of the motor." McNulty, 2:38–40.

Next, although the Examiner finds that Gear Ratios discloses a specific gear ratio of 2:1, the Examiner does not propose merely lifting this teaching from Gear Ratios and implementing it in McNulty's reduction gear and oscillating gear housing 11. In this regard, Gear Ratios teaches that gears are used to increase or reduce rotational speed and how this is done via selection of gear ratios. *See* Gear Ratios 1–2. The Examiner's stated rejection relies on *optimization*, based on the general teachings in Gear Ratios, to meet the requirement in claim 1 that the circumference of the driven member is at least twice as long as a circumference of the cutting chain drive member. *See* Non-Final Act. 4; Ans. 13. Appellant does not address whether it would have been obvious to optimize the ratio of the reduction gears disclosed by McNulty such that the driven member would have a circumference at least twice as long as a circumference of the cutting chain drive member. Appeal Br. 4–6. Accordingly, Appellant does not apprise us of Examiner error in the rejection of claim 1. Consequently, we sustain the rejection of claim 1, and dependent claims 2, 5, 8–10, and 12–17, for which Appellant makes no separate arguments. *See* Appeal Br.

Claim 7

Claim 7 depends from claim 1 and recites, in part, "said disk-shaped driven member is separated by clear space apart from said disk-shaped cutting chain drive member." Appeal Br. 14 (Claims App.).

The Examiner finds Gear Ratios discloses such spacing between its gears and contends that "the modified McNulty teaches wherein said disk-

shaped driven member is separated by clear space apart from said disk-shaped cutting chain drive member." Non-Final Act. 5.

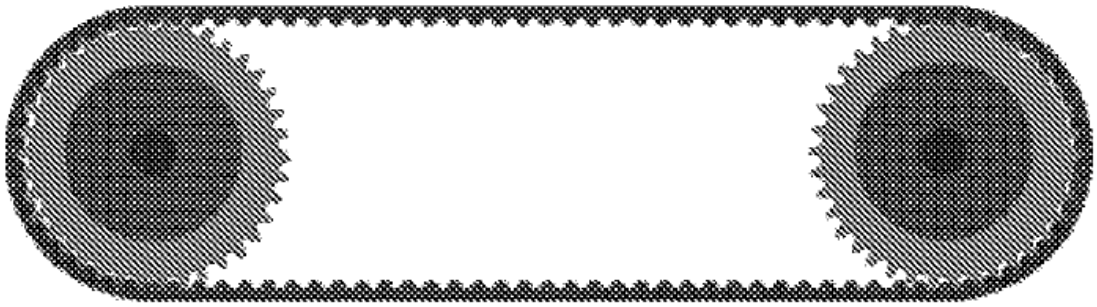
Appellant argues,

> [t]he Examiner seems to allege that by showing two disembodied gears being spaced apart then the subject matter is taught in the prior art. However, none of the cited references actually disclose a driven member or a drive member much less the structure of the driven member in relation to the drive member and the space between.

Appeal Br. 7.

In reply, the Examiner finds that one of the gears disclosed by Gear Ratios is a driven gear, and one is a drive gear. Ans. 13. The Examiner reasons, "it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify gear reduction as taught by McNulty to have the driven gear and drive gear to be spaced apart as claimed as an alternative for driving a reduction gear." *Id.*

The Examiner has the better position because, as discussed above, a person of ordinary skill in the art would understand McNulty's reduction gear and oscillating gear housing 11 to include a driven gear and a drive gear based on McNulty's description of this housing. Further, we agree with the Examiner that Gear Ratios discloses a driven gear and a drive gear. Page 14 of the Examiner's Answer includes a drawing from Gear Ratios, and we reproduce this drawing below.



This drawing appears on page 8 of Gear Ratios and depicts two gears operably coupled together via a toothed belt. After providing this drawing, Gear Ratios states:

> [t]he advantages of chains and belts are light weight, *the ability to separate the two gears by some distance,* and the ability to connect many gears together on the same chain or belt. For example, in a car engine, the same toothed belt might engage the *crankshaft*, two camshafts and the alternator. If you had to use gears in place of the belt, it would be a lot harder!

Gear Ratios 8 (emphasis added). A person of ordinary skill in the art would understand that the crankshaft drives such a gear system and a driven gear is, therefore, present. We agree with the Examiner that the use of the gears and a belt would have been an obvious alternative arrangement of the reduction gears used by McNulty inasmuch as doing so would have been the simple substitution of one known element for another to obtain predictable results. We sustain the rejection of claim 7 as unpatentable over McNulty and Gear Ratios.

Claim 11

Claim 11 depends from claim 1 and recites, "said ratio transmission consist[s] of two rotatable members comprising said round, disk-shaped driven member and said round, disk-shaped cutting chain drive member and

wherein said disk-shaped driven member is radially spaced apart from said disk-shaped cutting chain drive member." Appeal Br. 14–15 (Claims App.).

Appellant makes arguments similar to those made in support of the patentability of claim 7, stating, "none of the cited references actually disclose a driven member or a drive member much less the structure of the driven member in relation to the drive member and the space between." Appeal Br. 8.

In response, the Examiner finds that Gear Ratios discloses a driven gear and a drive gear as well as two gears spaced apart where one of the gears is driven by the other. Ans. 14. The Examiner reasons, "it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify gear reduction as taught by McNulty to have the driven gear and drive gear to be spaced apart as claimed as an alternative for driving a reduction gear." *Id.*

For the same reasons discussed above regarding the rejection of claim 7, we sustain the rejection of claim 11 as unpatentable over McNulty and Gear Ratios.

Rejection II—McNulty, Gear Ratios, and Michie

Claim 6 depends from claim 1, and Appellant does not make arguments for the patentability of claim 6 aside from those discussed above regarding claim 1. *See* Appeal Br. 8–9. Accordingly, for the same reasons, we sustain the rejection of claim 6.

Rejection III—McNulty, Gear Ratios, and Dunn

Claims 3 and 4

Appellant does not make arguments for the patentability of claims 3 and 4 aside from those discussed above regarding claim 1. *See* Appeal Br. 9. Accordingly, for the same reasons, we sustain the rejection of claims 3 and 4.

Claim 18

Claim 18 depends from dependent claim 17 and recites, "a tension adjustment assembly including two tension adjusting mechanisms." Appeal Br. 16 (Claims App.).

The Examiner finds that the combination of McNulty and Gear Ratios fails to disclose this element and relies on Dunn to remedy this deficiency. Non-Final Act. 10–11. Specifically, the Examiner finds Dunn discloses "a belt tensioning device (P) for engaging a belt (Fig. 1) for providing tension on the belt in order to increase belt contact with the pulley of the drive member." Non-Final Act. 11. First, the Examiner reasons, it would have been obvious "to modify the apparatus of the modified McNulty to include a belt tensioning mechanism as taught by Dunn in order to provide an increase in belt contact between the cutting chain drive member, the driven member and the transmission." *Id.* Next, the Examiner reasons, it would have been obvious "to add additional tension adjustment mechanisms in order to increase the tightness of the looped mechanism more." *Id.*

Appellant argues that the Examiner has failed to articulate a reason supported by rational underpinnings for modifying the combination of McNulty and Gear Ratios to include two tension adjusting mechanisms. Appeal Br. 9–12. In support of this argument, Appellant lists certain

exemplary rationales discussed in MPEP § 2143, which are based on *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007). *Id.* at 10. Appellant argues that the Examiner's reasoning fails to meet the requirements to support any one of these rationales. *Id.* at 10–11. Further, Appellant argues that the Examiner's reasoning "has absolutely nothing to do with the claimed subject matter." *Id.* at 11.

In response, the Examiner clarifies the reasoning for the rejection of claim 18, stating, "it would have been obvious to one of ordinary skill in the art, at the time of filing, to add additional tension adjustment mechanisms in order to increase the tightness of the looped mechanism more." Ans. 15.

The Examiner has the better position. The Examiner's proposed modification of the reduction gear system disclosed by McNulty to include a tensioning adjustment mechanism (idler pulley P) as taught by Dunn is merely the combination of prior art elements according to known methods to yield predictable results, namely, belt tensioning as disclosed by Dunn. *See* Dunn, Title, Fig. 1, 1:9–14. The use of an *additional* tensioning adjustment mechanism would have been a duplication of the use of a part already disclosed by Dunn, and its result would have been a predictable increase in the tensioning ability already provided by the addition of the first tensioning adjustment mechanism. Appellant's argument that Dunn discloses only a single tensioning adjustment mechanism does not apprise us of Examiner error. Accordingly, we sustain the Examiner's rejection of claim 18 as unpatentable over McNulty, Gear Ratios, and Dunn.

Rejection III—McNulty, Gear Ratios, and Weisner

Claims 19 and 20

Claim 19 depends from claim 1 and recites, "the housing can be rotated in relation to a swivel by a drive element." Appeal Br. 16 (Claims App.). Claim 20 depends from claim 19. *Id.*

The Examiner finds Weisner discloses "a cutting assembly having a housing (4) that can be rotated in relation to a swivel by a drive element (8) wherein the swivel includes at least one limit to prevent the housing from rotating beyond a predetermined amount (8, piston length)." Non-Final Act. 11. The Examiner reasons that it would have been obvious "to modify the housing of the modified McNulty to include a swivel and drive element as taught by Weisner in order to provide an adjustment for the depth of the cut." *Id.*

Appellant argues "[t]he Examiner has provided no indication of how or where Weisner teaches or discloses a swivel, where the alleged housing 4 can be rotated in relation to the swivel. Furthermore, Weisner does not actually appear to disclose anything related to that the alleged housing 4 can be rotated in relation to a swivel." Appeal Br. 12.

In response, the Examiner finds "Weisner teaches a housing (4) that can be rotated in relation to a swivel by a drive element (8). Weisner clearly depicts in Fig. 1 (col. 4, lines 42–46) . . . the drive element (8, piston cylinder) rotates (pivots) the housing (4) about a swivel (not shown)." Ans. 16.

We do not sustain the rejection of claim 19 because the Examiner's finding that Weisner teaches a housing that can be rotated as claimed is not supported by a preponderance of the evidence. Weisner describes the item

identified by reference numeral 4 as a "cutting arm," which includes cutting chain 5, an upper drive wheel, lower deflecting roller 7, and a guide bar. Weisner, 4:40–44. The Examiner does not adequately explain how a cutting arm such as cutting arm 4 of Weisner qualifies as a housing. This omission is made more stark by the fact that the "housing" recited in claim 19 is the same housing recited in claim 1, which requires that each rotatable member of the ratio transmission has a mounting shaft positioned at a fixed location on the housing. Accordingly, we do not sustain the rejection of claim 19, and claim 20 depending therefrom, as unpatentable over McNulty, Gear Ratios, and Weisner.

CONCLUSION

The Examiner's rejections are affirmed in part.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Basis	Affirmed	Reversed
1, 2, 5, 7–17	103(a)	McNulty, Gear Ratios	1, 2, 5, 7–17	
6	103(a)	McNulty, Gear Ratios, Michie	6	
3, 4, 18	103(a)	McNulty, Gear Ratios, Dunn	3, 4, 18	
19, 20	103(a)	McNulty, Gear Ratios, Weisner		19, 20
Overall Outcome			**1–18**	**19, 20**

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART