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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte NAO YOSHIHARA

Appeal 2011-012607
Application 11/559,654
Technology Center 1700

Before PETER F. KRATZ, JEFFREY T. SMITH, and
LINDA M. GAUDETTE, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 1-3 and 5-11. We have jurisdiction under 35 U.S.C. § 6.¹ The Examiner maintains and Appellant requests review of the rejection of claims 1-3 and 5-11 under 35 U.S.C. § 103 as unpatentable over Hashimura, (U.S. 2003/0201036 published Oct. 30, 2003). (App. Br. 4).

OPINION²

We have thoroughly reviewed the Examiner's rejection and Appellant's arguments there against. We affirm the Examiner's rejection for the reasons presented by the Examiner. We add the following.

Appellant's invention relates in general to a cold formable spring steel wire excellent in cold cutting capability and fatigue properties. (Spec. 1). Claim 1 is illustrative of the subject matter on appeal and is reproduced below.

1. A spring steel wire, comprising;
C: 0.45-0.70% (“%” herein means “mass%”),
Si: 1.9- 2.5%,
Mn: 0.15- 1.0%, and
Cr: 0.7- 2.0%,
wherein:

¹ Claim 4 has been withdrawn from consideration. (App. Br. 2).

² Appellant has not presented separate arguments directed to specific claims. We select independent claim 1 as representative of the subject matter on appeal.

P: 0.015% or less (exclusive of 0%);

S: 0.015% or less (exclusive of 0%);

Cr + Si: 3.0% or more;

Cr/Si: 0.95 or less;

wherein the metallic structure of the steel satisfies:

an average globular carbide particle size [$\sqrt{(ab)}$]: 1.0 μ m or less with aspect ratio (a/b, a: major axis of carbide, b: minor axis of carbide) being 2 or less;

a ratio (area%) of the globular carbide in the steel: (0.1 to 3) x amount (mass%) of C in the steel;

an amount (mass%) of Cr in the globular carbide: [0.006 x amount (mass%) of Cr in the steel] to [0.4 x amount (mass%) of Cr in the steel];

tensile stress: 2000 MPa or more; and

hardenability factor (Dic) represented by the following formulas (1) - (3): $110\text{mm} \leq \text{Dic} \leq 450\text{mm}$,

in the case where the C content is not less than 0.45% nor greater than 0.55%,

$$\text{Dic} = 25.4 \times (0.171 + 0.001[\text{C}] + 0.265[\text{C}]^2) \times (3.3333[\text{Mn}] + 1.0) \times (1.0 + 0.7[\text{Si}]) \times (1.0 + 0.363[\text{Ni}]) \times (1.0 + 2.16[\text{Cr}]) \times (1.0 + 0.365[\text{Cu}]) \times (1.0 + 1.73[\text{V}]) \dots$$

(1) in the case where the C content is greater than 0.55% but not greater than 0.65%,

$$\text{Dic} = 25.4 \times (0.115 + 0.268[\text{C}] - 0.038[\text{C}]^2) \times (3.3333[\text{Mn}] + 1.0) \times (1.0 + 0.7[\text{Si}]) \times (1.06 + 0.363[\text{Ni}]) \times (1.0 + 2.16[\text{Cr}]) \times (1.0 + 0.365[\text{Cu}]) \times (1.0 + 1.73[\text{V}]) \dots$$

(2), and in the case where the C content is greater than 0.65% but not greater than 0.70%,

$$\text{Dic} = 25.4 \times (0.143 + 0.2[\text{C}]) \times (3.3333[\text{Mn}] + 1.0) \times (1.0 + 0.7[\text{Si}]) \times (1.0 + 0.363[\text{Ni}]) \times (1.0 + 2.16[\text{Cr}]) \times (1.0 + 0.365[\text{Cu}]) \times (1.0 + 1.73[\text{V}]) \dots$$

(3) (in which, [C], [Mn], [Si], [Ni], [Cr], [Cu], and [V] represent an amount (mass%) of each element in the steel.).

The dispositive issue for this rejection is: Did the Examiner err in determining that Hashimura discloses a cold formable spring steel wire excellent in cold cutting capability and fatigue properties as required by the subject matter of independent claim 1?

Appellant acknowledges that Hashimura steel Nos. 27, 29, 90, 99 and 102 meet the C, Si, Mn, Cr, P, S, Cr + Si, and Cr/Si limitations of the claimed invention. However Appellant argues these steel compositions do not meet the minimum tensile stress limitation of the present claims. (App. Br. 8). According to Appellant, there is no basis for the Examiner's finding that the properties recited in the claims would be expected in the steel wire of Hashimura because the same composition is made by substantially the same process, (i.e., hot rolling, drawing, coiling, quenching, and tempering) as claimed. (*Id.*; Ans. 6).

Appellant argues that the properties described in independent claim 1 are achieved by the process recited in withdrawn non-elected claim 4. (App. Br. 7). Particularly, hot rolling the steel material to obtain a composition set forth in claim 1, setting a cooling starting temperature after hot rolling to 900°C or higher, and cooling the steel material from the cooling starting

temperature down to 700°C at a cooling rate of 10°C/sec or higher, and annealing the steel material at a temperature range of 550°C to 700°C. (*Id.*). Appellant argues that there is no basis the Examiner's finding because Hashimura does not disclose particular cooling and annealing steps after hot rolling and before drawing. (*Id.* at 8). Appellant further states:

Hashimura et al's invention is drawn to increasing the strength of spring steel by limiting the concentration of relatively small globular cementite carbides, as discussed above. Hashimura et al discloses particular process steps for their examples [0154]-[0158]. No cooling conditions, let alone a cooling starting temperature after hot rolling or a cooling rate from the cooling starting temperature down to 700°C, are disclosed, nor is an annealing step disclosed prior to quenching and tempering. Indeed, Hashimura et al discloses no particular steps between hot rolling and drawing.

(*Id.* at 6 (emphasis omitted).)

It is well settled that when a claimed product reasonably appears to be substantially the same as a product disclosed in the prior art, the burden of proof is on the applicants to prove that the prior art product does not inherently or necessarily possess the characteristics attributed to the claimed product. *Cf. In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990) (holding that similarity in terms of reactants and reaction conditions amounted to a prima facie case of unpatentability and that the burden was properly shifted to applicants to show that the prior art product does not have the claimed property); *see also In re Best*, 562 F.2d 1252, 1255 (CCPA 1977). Whether the rejection is based on inherency under 35 U.S.C. § 102 or on obviousness under 35 U.S.C. § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture

products or to obtain and compare prior art products. *Best*, 562 F.2d at 1255.

In this case Appellant argues that the data in the Specification establishes that meeting the compositional limitations of the claims is not sufficient to establish that Hashimura's steel compositions meet the property limitations of the claimed invention. In support of this position, Appellant argues that the comparative steel wires in the Specification are even closer to the present invention than any disclosure in Hashimura. (App. Br. 8.).

The evidence presented by Appellant is unpersuasive of patentability. While Appellant alleges that the comparative steel wire examples in the Specification are even closer to the present invention, Appellant has not explained why these comparative examples are representative of the steel wires taught or suggested by Hashimura. Just because the steel wire formed by the process of the comparative examples does not meet all the properties of the claimed invention does not establish that this would also be true for all of the steel wires within the ambit of those disclosed or suggested to one of ordinary skill in the art by Hashimura.

When drafting a claim, Appellant is free to recite features of a product either structurally or functionally. *See In re Swinehart*, 439 F.2d 210, 212 (CCPA 1971). Yet, choosing to define a product based upon the properties carries with it a risk. As our predecessor court stated in *Swinehart*, 439 F.2d at 212-13:

the mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to those things to distinguish over the prior art. Additionally, where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing

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novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on.

See also In re Hallman, 655 F.2d 212, 215 (CCPA 1981); *In re Ludtke*, 441 F.2d 660, 663-64 (CCPA 1971).

Under these circumstances, we find no error in the Examiner's obviousness determination.

ORDER

The Examiner obviousness rejection is affirmed.

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

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