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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/036,880	02/25/2008	Kiyohito ISHIDA	081136	2842

38834 7590 03/11/2013

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EXAMINER	
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ART UNIT	PAPER NUMBER
1733	

NOTIFICATION DATE	DELIVERY MODE
03/11/2013	ELECTRONIC

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KIYOHITO ISHIDA,
RYOSUKE KAINUMA, KATUNARI OIKAWA,
IKUO OHNUMA, and JUN SATO

Appeal 2011-009972
Application 12/036,880
Technology Center 1700

Before CHUNG K. PAK, CHARLES F. WARREN, and
GEORGE C. BEST, *Administrative Patent Judges*.

BEST, *Administrative Patent Judge*.

DECISION ON APPEAL

On July 12, 2010, the Examiner finally rejected claims 1-8 of Application 12/036,880 under 35 U.S.C. § 103(a) as obvious. Appellants seek reversal of these rejections pursuant to 35 U.S.C. § 134(a). We have jurisdiction under 35 U.S.C. § 6(b).

For the reasons set forth below, we REVERSE.

BACKGROUND

The '880 application describes a cobalt-based alloy that is alleged to be suitable for use in high temperature applications such as gas turbine blades (Spec. 1). While cobalt-based alloys are known to be useful in such applications, especially when corrosion resistance is desired, their use is limited to applications with a maximum temperature of 750°C (*id.* at 1-2). Appellants claim to have invented a cobalt-based alloy that has heat-resistance equivalent to known nickel-based alloys (*id.* at 2-3).

Claim 1 is the only independent claim remaining in the '880 application and is reproduced below:

1. A cobalt-base alloy with high heat resistance and high strength comprising: in a cobalt-base alloy comprising a composition of, in terms of mass proportion,

    0.1 to 10% of Al,

    3.0 to 45% of W, and

    Co as a remainder

    containing indispensable impurities,[1]

    a metal texture in which a[n] $L1_2$-type intermetallic compound (γ' phase) of $Co_3(Al, W)$ by atom ratio is precipitated, the $L1_2$-type intermetallic compound is precipitated under conditions where the particle diameter is 10 nm to 1 μm and the precipitation amount is 40 to 85% by

[1] In view of Appellants' arguments in this appeal, we need not and have not considered the construction of the phrase "indispensable impurities." While we note that "indispensable" can mean either "unavoidable" or "essential," *see, e.g.*, Merriam-Webster.com, *Indispensable*, http://www.merriam-webster.com/dictionary/indispensable (accessed Feb. 27, 2013), we also need not and have not considered whether this claim language complies with 35 U.S.C. § 112, ¶ 1 and 35 U.S.C. § 112, ¶ 2.

> volume, and the mismatch of the lattice constant between the γ' phase and matrix (γ phase) is 0.5% or less.

(App. Br. 16 (Claims App'x)).

REJECTIONS

The Examiner finally rejected claims 1-8 of the '880 application under 35 U.S.C. § 103(a) as obvious over JP 2004-238720 A ("Ishida," published Aug. 26, 2004) (Final Rejection ("FR") 2 (July 12, 2010)).[2]

DISCUSSION

Appellants argue that the Examiner erred in finding that Ishida establishes a prima facie case of obviousness (App. Br. 7-14). In particular, Appellants argue that the Examiner has not established that the claimed structures and/or properties of the '880 application's alloys would inevitably be present in Ishida's alloys (*id.*).

We agree with Appellants that the Examiner has not demonstrated the existence of a prima facie case of obviousness for the following reasons. *First*, Ishida does not teach or would have suggested forming the high strength and high temperature resistant alloys having particular metal textures as required by the claims on appeal. In particular, Ishida describes shape memory alloys, rather than high strength and high temperature resistant alloys having particular metal textures. Although Ishida discloses employing cobalt and one or more of at least 29 different alloying elements, i.e., more than 27,000 combinations of cobalt with 4 or fewer alloying elements, to form shape memory alloys, Ishida ¶¶ [0008], [0012], it does not

[2] We rely upon the English translation of Ishida that is of record in the application.

provide any guidance in terms of process conditions and particular combinations of alloying elements in forming the high strength and high temperature resistant alloys having particular metal textures as required by the claims on appeal.

Second, Ishida and the '880 application describe different manufacturing processes that are used in the production of their respective alloys. Ishida describes the production of its shape memory alloy as involving at least the following steps: (1) solubilizing the aforementioned elements in an inert gas atmosphere, (2) solidifying the alloy and shaping the material into a specified shape by means of hot processing and cold processing, and (3) a second solubilizing treatment, optionally followed by an aging treatment. Ishida ¶¶ [0017]-[0018]. Indeed, Ishida's second solubilizing treatment improves the shape memory properties of Ishida's alloys. Ishida ¶¶ [0027]-[0028]; *see also* T. Omori et al., *Shape Memory Effect in the Ferromagnetic Co-14 at% Al Alloy*, 52 SCRIPTA MATERIALIA 565, 566-67 (2005). In contrast, the '880 application's alloy is manufactured in a process that uses cold processing to work harden the alloy as the final step in the process (App. Br. 13-14).

The Examiner has not provided any reasoning having a logical basis that suggests why a person of ordinary skill in the art would have been motivated to conclude the manufacture of Ishida's shape memory alloys with a cold processing step to form the claimed high strength and high temperature resistant alloys having particular metal textures. Nor has the Examiner demonstrated that the claimed high strength and high temperature resistant alloys having particular metal textures are necessarily formed without the cold processing step required by the '880 application.

CONCLUSION

Because the Examiner did not establish a prima facie case of obviousness, we reverse the rejection of claims 1-8 of the '880 application as obvious over Ishida.

REVERSED

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