

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RALPH KURT

Appeal 2007-4172
Application 10/453,889
Technology Center 1700

Decided: November 30, 2007

Before BRADLEY R. GARRIS, PETER F. KRATZ, and
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134 the final rejection of claims 1-16. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

We REVERSE.

INTRODUCTION

Appellant claims a lithographic apparatus and a device manufacturing method that comprises, in relevant part, at least one optical element on which a beam of radiation is incident that has at least one optical layer

comprised of an alloy of Mo and Cr (claims 1 and 16). The Mo-Cr optical layer provides good reflective properties but does not suffer from the crystal lattice mismatch problems of conventional Mo-Si alloy material (Specification ¶ [0018]).

Claim 1 is illustrative:

1. A lithographic apparatus, comprising:
 - a radiation system constructed and arranged to provide a projection beam of radiation;
 - a support structure constructed and arranged to support a patterning device, the patterning device constructed and arranged to pattern the projection beam according to a desired pattern;
 - a substrate table constructed and arranged to hold a substrate;
 - a projection system constructed and arranged to project the patterned beam onto a target portion of the substrate, wherein at least one optical element on which the beam of radiation is incident has at least one optical layer comprised of an alloy of Mo and Cr.

The Examiner relies on the following prior art references as evidence of unpatentability:

Morishita ¹ (as translated)	JP 63-303037	Dec. 9, 1988
Shiraishi	2003/0222225 A1	Dec. 4, 2003

The rejections as presented by the Examiner are as follows:

¹ The Examiner and Appellant refer to JP 63-303037 as “Kawai.” The translation indicates that Morishita is the first named inventor on the JP 63-303037 reference. Accordingly, we refer to JP 63-303037 as Morishita in this decision.

1. Claims 1-16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shiraishi in view of Morishita.

OPINION

Appellant argues that Morishita is non-analogous art because it is not from Appellant's field of endeavor (i.e., photolithographic projection apparatus and a device manufacturing method) and is not reasonably pertinent to the particular problem faced by Appellant (i.e., the use of optical elements for use with extreme ultraviolet radiation as reflectors in a lithographic projection apparatus and a device manufacturing method) (Br. 4-5). Appellant argues that there is no motivation to use Morishita's metal mold as a reflector in a photolithographic apparatus (Br. 5).

We have considered all of Appellant's arguments and cannot sustain the Examiner's § 103 rejection over Shiraishi in view of Morishita.

Morishita discloses a Mo-Cr alloy that has superior mirror finish and corrosion resistance properties (Morishita 3). Morishita further discloses that the Mo-Cr alloy is used to form a metal mold by casting or powder metallurgy techniques (Morishita 5). Morishita discloses that the metal mold may be used to form optical disks (Morishita 5).

Despite Morishita's clear disclosure, the Examiner erroneously finds the following: (1) Morishita discloses a Mo-Cr alloy mirror coating on a surface (Ans. 4 and 5), (2) Morishita discloses that the Mo-Cr alloy is used to form optical disks and/or plastic lenses such that Morishita is analogous art (Ans. 5), and (3) Morishita does not disclose forming a metal mold, but rather forming a resin mold for use as an optical disk (Ans. 6). The Examiner's findings are contrary to Morishita's explicit disclosure.

In view of Morishita’s disclosure, we find that Morishita is non-analogous art to Appellant’s claimed invention. Analogous art may include art that is not in applicant’s field of endeavor. *KSR Int. Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1742 (2007) (“Common sense teaches, however, that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle”). However, in the present case, even one looking outside Appellant’s field of endeavor would not look to Morishita’s Mo-Cr metal mold material to cure the deficiencies of Shiraishi’s lithographic optical system (i.e., using Morishita’s metal mold material in an optical system would not have been an obvious use beyond its primary purpose (i.e., molding)). *Id.*

Furthermore, Morishita is non-analogous art because it is not reasonably pertinent to any problem regarding optical elements in the lithographic arts. *KSR*, 127 S. Ct. at 1742. The “mirror finish” disclosed by Morishita is directed to the smooth surface formed on a mold surface, not the degree of reflectivity of the surface. Accordingly, the “mirror finish” is used to mold optical disks having the required smoothness.

Regarding Appellant’s argument that Morishita does not suggest using a mold with a mirror surface as a reflector in an optical system (i.e., no motivation), we find that, as noted above, Morishita’s “mirror finish” property regards the smoothness of the mold surface used to form the optical disk, not the degree of reflectivity of the mold. Therefore, we determine that there is no reasonable expectation of success that Morishita’s “mirror surface” property of the mold could be used to reflect radiation.

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For the above reasons, we reverse the Examiner's § 103 rejection of claims 1-16 over Shiraishi in view of Morishita.

DECISION

The Examiner's decision is reversed.

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).

REVERSED

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