

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte TETSUYA NAGANO, MASARU KOEDA,  
MAKOTO SATO, AKIRA SATO and SHINJI MIYAUCHI

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Appeal No. 2006-1058  
Application No. 10/034,073

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ON BRIEF

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Before KIMLIN, PAK and TIMM, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-3, 5, 8 and 9. Claims 4, 6 and 7 have been withdrawn from consideration. Claims 1 and 3 are illustrative:

1. A grating having a groove cross section shape and a groove bottom part, wherein said groove cross section shape is a half sinusoidal wave and said groove bottom part is shaped as a flat form.

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3. A grating having a groove cross section shape and a groove bottom part, wherein said groove cross section shape is a half sawtooth wave and said groove bottom part is shaped as a flat form.

The examiner relies upon the following references in the rejections of the appealed claims:

Okayama et al. (Okayama)	5,280,388	Jan. 18, 1994
Kataoka	5,444,567	Aug. 22, 1995
Imamura et al. (Imamura)	6,099,146	Aug. 8, 2000

Appellants' claimed invention is directed to a grating having a groove cross section shape and a groove bottom part. Claim 1 on appeal recites that the groove cross section shape is a half sinusoidal wave, whereas claim 3 recites that the groove cross section shape is a half sawtooth wave. The groove bottom part of the gratings of claims 1 and 3 is shaped as a flat form.

Appealed claims 1 and 5 stand rejected under 35 U.S.C. § 102(b) as being anticipated by either Okayama or Kataoka. Claims 3, 5, 8 and 9 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Imamura. Claim 2 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over either Okayama or Kataoka in view of Imamura.

We have thoroughly reviewed the respective positions advanced by appellants and the examiner. In so doing, we will affirm the examiner's § 102 rejection of claims 1 and 5 to the

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extent it is based upon Kataoka. We will also sustain the examiner's § 102 rejection over Imamura as well as the examiner's § 103 rejection of claim 2.

We consider first the examiner's § 102 rejection of claims 1 and 5 over Okayama or Kataoka. We agree with appellants that although Figure 2 of Okayama seems to indicate a grating having a groove cross section in the form of a half sinusoidal wave, Figures 3 and 4 of the reference "show the configurations of the structure for generating the phase difference in the direction of x in FIG. 2" (column 3, lines 28-30). Manifestly, Figures 3 and 4 of Okayama illustrate that the cross section of the grating is not a half sinusoidal wave, as presently claimed.

The examiner's rejection of claims 1 and 5 under § 102 over Kataoka is another matter. Figures 7, 8 and 12 of Kataoka depict a grating having a groove bottom part that is shaped as a flat form and a groove cross section shape that is a half sinusoidal wave. Unlike the situation concerning the rejection over Okayama, Kataoka does not provide any disclosure that teaches that the cross section of the grating is anything other than a half sinusoidal wave. We are not persuaded by appellants' argument that "in order to show 'something' when preparing these figures, the illustrator added 'bumps' to the figures as

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representing the grating lines" (page 8 of principal brief, penultimate paragraph). Obviously, the draftsman for the Kataoka figures could have selected any of a number of shapes for the grating lines other than the half sinusoidal wave depicted. That the reference illustrates a half sinusoidal wave is the best evidence that one of ordinary skill in the art would find a description of the claimed grating in Kataoka. While appellants contend that the figures of Kataoka "could reasonably be interpreted by one with ordinary skill in the art as showing something other than a half-sinusoidal shaped groove in a grating" (paragraph bridging pages 8 and 9 of principal brief), appellants have not established what "something other" the skilled artisan would understand upon viewing the reference figures and the supporting specification. Stated otherwise, appellants have not provided evidentiary support for their argument that one of ordinary skill in the art would interpret the relevant figures of Kataoka in a manner different than that actually depicted.

We now turn to the examiner's § 102 rejection of claims 3, 5, 8 and 9 over Imamura. We agree with the examiner that Figures 1a and 1c depict a grating having a groove cross shape in the form of a half sawtooth wave, as well as a groove bottom part

shaped as a flat form. We also concur with the examiner that appellants' specification does not define a particular structure for a half sinusoidal wave that distinguishes over the structures illustrated by Imamura. In particular, the specification discloses that "[t]he grating of the present invention may have a groove cross section shaped like a half sawtooth, or a half sawtooth with a flat top as shown in Fig. 6" (page 15, second paragraph). Inasmuch as the rejected claims embrace the shape of appellants' Figure 6, we find no meaningful distinction between gratings within the scope of the rejected claims and the gratings represented by Figures 1a and 1c of Imamura. Appellants' reference to an encyclopedic definition of *Sawtooth Wave* does not establish how one of ordinary skill in the art would interpret the claimed half sawtooth wave in light of the present specification.

We are also not persuaded by appellants' argument that "a trapezoid does not include the generally vertical trailing face of a 'half sawtooth wave'" (page 11 of principal brief, first paragraph). This argument lacks relevancy since appellants' Figure 6 does not show a generally vertical trailing face. As for appellants' contention that "[t]he 'half sawtooth wave' does not have symmetrical leading and trailing faces" (id.), such a

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limitation is not recited in the appealed claims and appellants' specification does not establish such a definition of a half sawtooth wave.

Concerning the § 103 rejection of claim 2, we find no error in the examiner's reasoning that one of ordinary skill in the art would have found it obvious "to form a grating having a duty ratio of .5, as is taught to be know [sic, known] from Kataoka et al, motivated by the fact that it is known that the efficiency of the grating is dependent upon the spacing thereof" (page 4 of Answer, penultimate paragraph). We note that appellants rely primarily upon the arguments presented against the § 102 rejections over Okayama and Kataoka. We note that appellants base no argument upon objective evidence of nonobviousness, such as unexpected results.

In conclusion, based on the foregoing, the examiner's decision rejecting the appealed claims is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (effective Sep. 13, 2004; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sep. 7, 2004)).

AFFIRMED

EDWARD C. KIMLIN	)	
Administrative Patent Judge	)	
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CHUNG K. PAK	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
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	)	
CATHERINE TIMM	)	
Administrative Patent Judge	)	

ECK:clm

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Rankin, Hill, Porter & Clark LLP  
4080 Erie Street  
Willoughby, OH 44094-7836