

Ex parte Hayashi

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

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(2) is not binding precedent of the Board.

Paper No. 45

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KENJI HAYASHI

Appeal No. 93-1560
Application 07/758,346¹

HEARD: August 6, 1996

Before HAIRSTON, JERRY SMITH and LEE, Administrative Patent Judges.

LEE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of the appellant's claims 9-13 under 35 U.S.C. § 103.

¹ Application filed September 9, 1991. According to the appellant, this application is a continuation of Application 07/462,309, filed December 21, 1989, now abandoned, which is a continuation of Application 07/094,376, filed on September 9, 1987, now abandoned, which is a division of Application 06/943,833, filed December 17, 1986, now Patent No. 4,851,164, which is a continuation of Application 06/674,072, filed November 23, 1984, now abandoned.

93-1560

Appeal No. 93-1560
Application 07/758,346

References Relied on by the Examiner

Suzuki et al. (Suzuki I)	4,421,398	Dec. 20, 1983
Suzuki et al. (Suzuki II)	4,427,265	Jan. 24, 1984

The Rejections on Appeal

Claims 9-13 stand rejected under 35 U.S.C. § 103 for obviousness over the combined teachings of Suzuki I and Suzuki II. The rejection of claims 9-13 under 35 U.S.C. § 112, first paragraph, as being without adequate written description in the specification has been withdrawn (Answer at 2).

The appellant has grouped claims 9-12 for single treatment in connection with the obviousness rejection.

The Invention

The invention is directed to a focal plate for use in devices such as cameras. Independent claim 9 is representative and reads as follows:

9. A focal plate comprising: a plate composed of optical material, the plate having a plurality of lens-like portions protruding from a major surface thereof, each lens-like portion having a base whose peripheral boundary is irregularly shaped but which lies within an imaginary hexagonally-shaped area on the plate surface, the imaginary hexagonally-shaped areas being mutually contiguous to define a tight honeycomb pattern, and each lens-like portion having an irregularly roughened surface defined by a plurality of irregularly-shaped protruding and recessed portions of different sizes irregularly arranged over the surface of the lens-like portion.

Appeal No. 93-1560
Application 07/758,346

Claim 13 further requires that the irregular boundaries between adjacent lens-like portions be sufficiently irregular to eliminate formation of moire patterns during use of the plate.

Opinion

The rejection of claims 9-13 under 35 U.S.C. § 103 as being obvious over Suzuki I and Suzuki II is affirmed.

The claims require that the hexagonally-shaped areas on the focal plate be "mutually contiguous to define a tight honeycomb pattern." According to the examiner (Answer at 3), the mutually contiguous limitation can be satisfied by point contact between the hexagonal shapes illustrated in Figure 2 of Suzuki I. The appellant argues, instead (Br. at 13-14; Reply at 2), that the hexagonal shapes cannot be mutually contiguous unless their sides or edges are contiguous. According to the appellant (Reply at 2), the mutually contiguous limitation excludes point contact.

We disagree with the appellant. There is no reason to read mutual contiguity as excluding point contact. While appellant's specification discloses edge contact, that is merely a preferred embodiment and one example of mutual contiguity. The example does not demonstrate that contiguousness excludes point contact.

However, the claims do not merely require mutual contiguity. Indeed, the claims go on to recite that the mutual contiguity

Appeal No. 93-1560
Application 07/758,346

characteristic defines "a tight honeycomb pattern." In our view, a "tight" honeycomb pattern results from edge or side contiguity, and not point contiguity, between the hexagonal shapes. As is evident from Figure 2 in Suzuki I, the pattern exhibited includes substantial gaps between adjacent edges of the hexagonal shapes and thus cannot reasonably be deemed a "tight" honeycomb pattern.

The examiner states an alternative position. According to the examiner (Answer at 3), Figure 2 of Suzuki I does not define the focusing plate but the interference pattern generated and then used to produce the focusing plate. The examiner states (Answer at 3) that the triangular regions separating the edges of the hexagonal shapes in Suzuki I's Figure 2 define regions that will result in concavities instead of convexities in the focusing plate. According to the examiner (Answer at 3-4), the resulting focal plate as shown in Suzuki I's Figure 3 has a focal plate with a "tight" honeycomb pattern.

The examiner's position is without merit, although he is correct that (1) Suzuki I's Figure 2 illustrates the interference pattern used to create the focal plate; and (2) Suzuki I's Figure 3 illustrates a fragmentary view of the resulting focal plate. With regard to Suzuki I's Figure 2, we are unpersuaded by the appellant's argument that the description in Suzuki II about

Appeal No. 93-1560
Application 07/758,346

a similar Figure in Suzuki II applies. Suzuki I states that its Figure 2 "is a pattern diagram showing intensity distribution of an interference pattern obtained by the interferometer shown in FIG. 1" (column 2, lines 52-54).

What the examiner states about Suzuki I's Figure 2 and Figure 3 is self-contradictory. First, the examiner admits (Answer at 3-4) that the triangular regions separating the hexagonal shapes shown in Figure 2 are included in the focusing plate structure illustrated in Figure 3. We agree with that conclusion. Indeed, in column 4, lines 14-21, Suzuki I states the following with regard to the surface of the focusing plate shown in Figure 3:

As is apparent from FIG. 2, the surface of this focussing plate [a fragmentary view of which is shown in Figure 3] contains therein the micro-lens shaped convex surfaces which are regularly arranged in a densely filled condition. The boundaries among these convex surfaces [the hexagonally shaped regions] are smoothly joined by concave surfaces of a curvature opposite to that of the convex surfaces, so that there is no place in it where abrupt light scattering is caused.

Additionally, in column 4, lines 9-14, Suzuli I states:

FIG. 3 illustrates a fragmentary perspective view of the concavo-convex surfaces of the focussing plate recorded on the sensitive member having the conversion characteristic $\gamma = 1$, i.e., a relief pattern represented by the contours in FIG. 2 (emphasis added).

In column 3, lines 17-29, Suzuki I also describes how the focusing plate is made. First, the interference pattern of Figure 2 is recorded on a photosensitive material, then a master metal mold is made by electroforming the recorded member, and finally the focusing plate is molded from the master mold.

After having correctly determined that the focal plate represented by Figure 3 includes the pattern illustrated in Figure 2, the examiner erroneously states that Figure 3 illustrates a focal plate with a tight honeycomb structure. Figure 3 cannot illustrate a tight honeycomb structure if the examiner has already concluded, as he did, that it includes triangular regions separating the hexagonal shapes as is shown in Figure 2.

We note further that in Suzuki I, column 2, lines 16-18, it is expressly stated that:

[t]he boundaries among these micro-lens shaped [hexagonal] curved surfaces being smoothly joined with curved surfaces having a curvature opposite to that of the abovementioned micro-lens shaped curved surfaces,
. . . .

Thus, the boundaries of the hexagonally shaped regions in Suzuki I are not mutually contiguous in the sense that there is a tight honeycomb configuration as is required by the claims.

As for whether the pictorial appearance of Figure 3 would independently suggest something different from the written

Appeal No. 93-1560
Application 07/758,346

description of Figure 3, it may, and it may not. Note that Suzuki I states that Figure 3 is only a fragmentary view, which means the structure illustrated may only be a portion on a single micro-lens hexagonal area instead of multiple micro-lenses. In any event, the question is not before us on appeal. If it is an issue at all, it should have been raised and addressed first by the primary examiner. Here, we conclude only that a structure including the interference pattern exhibited by Suzuki I's Figure 2, which is what the examiner has determined Figure 3 to be, does not have a tight honeycomb configuration.

There is, however, a different way to view Suzuki I's Figure 2, a way in which Figure 2 can be seen as exhibiting mutually contiguous hexagons in a tight honeycomb pattern precisely as is required by the claims. It should be noted that the claims expressly recite "imaginary" hexagonally-shaped areas, and so all that is really required in that regard is enclosure of the base of each lens-like portion within mutually contiguous "imaginary" hexagons in a tight honeycomb pattern.

Specifically, the centers of the triangular regions separating the micro-lens portions form the apexes of "imaginary hexagons" which are mutually contiguous to present a tight honeycomb pattern. A copy of Suzuki I's Figure 2 is reproduced

on this page, with several of the imaginary hexagons traced out in red. As can be seen from the illustration, the imaginary hexagons are mutually contiguous in a side-by-side relationship and each completely surrounds a micro-lens area as is required by the claims.

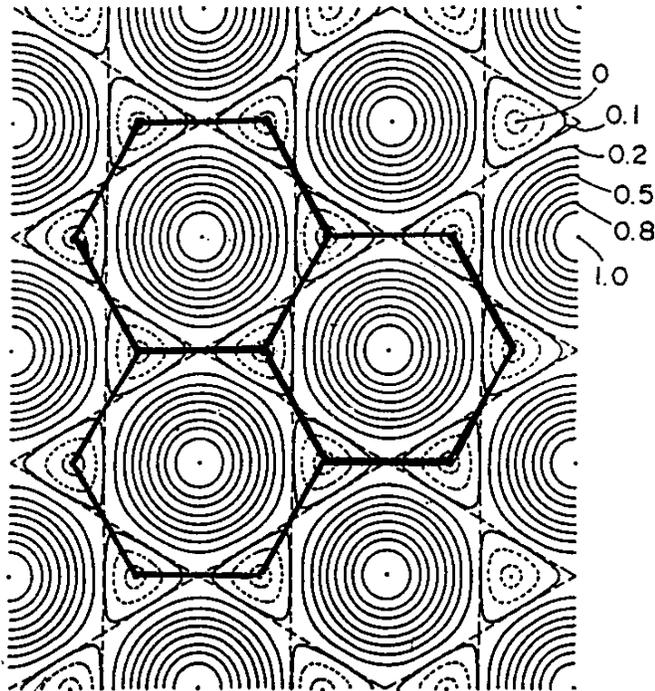


FIG. 2

As for the other claim feature that the boundaries of the base of each protruding lens-like portion be irregularly shaped, the examiner acknowledges that Suzuki I does not disclose the feature (Final Rejection at 3-4). The examiner correctly determines, however, that Suzuki II discloses an improvement

Appeal No. 93-1560
Application 07/758,346

process applicable to Suzuki I's focal plate, which process necessarily disrupts the boundary regularity of the base portions to produce the required characteristic (Answer at 4).

The appellant's counter-arguments are without merit. It is true that none of the processes disclosed in Suzuki II is the same as the appellant's electroplating process for disturbing the surface regularity of the lens-like structures in an electrolytic bath. But that does not mean none of the processes of Suzuki II inherently creates the irregularity required by the claims.

The examiner reasonably identifies (Answer at 4) the diffusion elements 11, 13 and 18 used in the processes disclosed in Suzuki II in connection with Suzuki II's Figures 5, 7 and 8 as that which create variations in the interference pattern for generating surface irregularity and roughness on the recording member 8. Suzuki II states (column 3, lines 35-36) that the recorded interference pattern is synthesized "by the three light beams and the diffused light 12 from the diffusion surface 11" (emphasis added). It is evident that nothing blocks any portion of the recording member from the light coming through the diffusion element in each of the embodiments shown.

Thus, whether the boundaries of the base of each lens-like portion refers to the circular base of the lens-like portions or

Appeal No. 93-1560
Application 07/758,346

to the concave curving areas between the lens-like portions, the examiner reasonably concluded that they inherently would have irregularities. The surface roughening effect provided through light passing through the speckle pattern in the diffusion elements is not limited to any restricted area on the recording member 8. That is so whether or not Suzuki II is itself interested in irregular boundaries on the base areas.

The appellant has the burden of rebutting the examiner's reasonable conclusion of inherency. That, the appellant has not done.

It is true that Suzuki II's resulting focal plate includes two-dimensional periodicity in the interference pattern. But that does not require lack of irregularity in the boundaries of the bases of the lens-like portions. Irregular boundaries are nonetheless recognizable boundaries and still define an overall contour which gives meaning to "two-dimensional periodicity."

The numerous times the appellant points to statements in Suzuki II which discuss how the surfaces of the lens-like portions have been roughened do not demonstrate that the boundaries of the bases of the lens-like portions are without irregularities. The appellant has not rebutted the examiner's reasonable finding of inherency. This is not unlike the

Appeal No. 93-1560
Application 07/758,346

situation with respect to the appellant's own specification wherein no express mention is made of any roughness or irregularity in the boundaries of the base areas.

Additionally, while Figure 6 of Suzuki II does show roughness or irregularity on the base areas of the protruding surfaces or on the concave areas separating the protruding surfaces, that does not mean the absence of roughness or irregularity on those parts. Those areas are simply not visible or are otherwise shielded from view in Figure 6.

As for claim 13, the appellant has not set forth any meaningful argument that the claimed feature is not met by the prior art. Specifically, the appellant states (Br. at 16):

While Suzuki '265 discuss prevention of moire effects, such is not achieved by creation of irregular boundaries between adjacent lens-like portions.

Several deficiencies characterize the appellant's argument.

First, the irregular boundaries referred to in claim 13 is that defined in claim 12 from which claim 13 depends, and claim 12 has been grouped by the appellant to stand and fall with independent claim 9. Accordingly, based on the rejection of claim 9, it is indisputable by the appellant before us that Suzuki II has the claimed irregular boundaries between adjacent

Appeal No. 93-1560
Application 07/758,346

lens-like portions. Also, the appellant does not dispute that moire effect is prevented in Suzuki II. Based on the foregoing, the clear presumption is that the irregular boundaries are sufficiently irregular to eliminate moire effects.

The presumption has not been rebutted by the appellant. The argument that Suzuki II's elimination of moire effects is not derived from the creation of irregular boundaries between the lens-like portions lacks any supporting explanation. The appellant nowhere explains what in Suzuki II, if not the claimed irregular boundaries, otherwise prevents moire effects.

Secondly, if the irregular boundaries in Suzuki II have nothing to do with the elimination of moire effects, then appellant's claim 13 which requires that the irregularity be sufficient to eliminate moire effects makes no sense and would be rejectable under 35 U.S.C. § 112, second paragraph. And if the irregular boundaries are involved in eliminating moire effects, the fact that moire effects are eliminated in Suzuki II suggests that the irregularities are sufficiently irregular to eliminate formation of moire patterns during use of the focal plate.

Appeal No. 93-1560
Application 07/758,346

CONCLUSION

For all of the foregoing reasons, the rejection of claims 9-13 under 35 U.S.C. § 103 as being obvious over Suzuki I and Suzuki II is affirmed.

Because the rationale based on which we find that Suzuki I discloses a tight honeycomb pattern is different from that of the examiner, and because we disagree with the examiner's rationale, we designate this affirmance as a new ground of rejection under 37 CFR § 1.196(b).

This decision is not ripe for an immediate appeal to the Court of Appeals for the Federal Circuit under 35 U.S.C. § 141.

Any request for reconsideration or modification of this decision by the Board of Patent Appeals and Interferences based upon the same record must be filed within one month from the date hereof. 37 CFR § 1.197.

With respect to the new rejection under 37 CFR § 1.196(b), should the appellant elect the alternate option under that rule to prosecute further before the Primary Examiner by way of amendment or showing of facts, or both, not previously of record, a shortened statutory period for making such a response is hereby set to expire two months from the date of this decision.

Appeal No. 93-1560
Application 07/758,346

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