

Internal distribution code:

- (A) [-] Publication in OJ
- (B) [-] To Chairmen and Members
- (C) [-] To Chairmen
- (D) [X] No distribution

**Datasheet for the decision
of 4 September 2024**

Case Number: T 2020/22 - 3.4.02

Application Number: 18191037.3

Publication Number: 3480666

IPC: G04G9/00, G04G11/00, G04B19/34,
G03B21/06

Language of the proceedings: EN

Title of invention:
Laser Projection Clock

Applicant:
Hsu, Chia Wei
Hsu, Chia Chi

Headword:
Laser Projection Clock/HSU

Relevant legal provisions:
EPC Art. 83

Keyword:
Sufficiency of disclosure - (yes)

Decisions cited:
T 2340/12, T 0967/09



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 2020/22 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 4 September 2024

Appellant:
(Applicant 1)

Hsu, Chia Wei
No.541, Sec.2, Tailin Rd.
Taishan New Taipei City
243 (TW)

Appellant:
(Applicant 2)

Hsu, Chia Chi
No.541, Sec.2, Tailin Rd.
Taishan New Taipei City
243 (TW)

Representative:

Lang, Christian
LangPatent Anwaltskanzlei IP Law Firm
Ingolstädter Straße 5
80807 München (DE)

Decision under appeal:

**Decision of the Examining Division of the
European Patent Office posted on 31 March 2022
refusing European patent application No.
18191037.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman R. Bekkering
Members: F. Giesen
C. Almberg

Summary of Facts and Submissions

I. The present appeal by the applicants (appellants) is directed against the decision of the examining division refusing European patent application 18191037.3 for non-compliance with Article 83 EPC.

II. The appellants request

as a main request that the decision under appeal be set aside and that a patent be granted on the basis of the claims 1 to 8, filed with letter dated 21 June 2021,

or as an auxiliary request that the case be remitted to the examining division for further prosecution.

III. With letter dated 2 July 2024, the appellants agreed to a remittal of the case for further prosecution.

IV. Claim 1 reads as follows:

*"A laser projection clock (100), comprising:
a driving device (10) comprising a plurality of rotating shafts (11) and a power element (12) for driving the plurality of rotating shafts (11) to rotate at different speeds respectively,
wherein each of the rotating shafts (11) has a rotation axis, and the rotation axes are separated from each other;
characterised by
a plurality of pointer light source devices (20) configured on one side of the driving device (10) to each output a laser beam (L),*

wherein the pointer light source device (20) comprises a laser output unit (21) and a tilt adjustment unit (22) configured on one side of the laser output unit (21), an output direction of each laser beam (L) being adjustable; and a plurality of diffraction optical elements or holograms (30, 30A, 30B, 30C) configured on the plurality of rotating shafts (11) in a one-on-one manner in order to be rotated by the plurality of rotating shafts (11) respectively, wherein each of said diffraction optical element or hologram (30, 30A, 30B, 30C) has an indication pattern (31A, 31B, 31C), and the plurality of laser beams (L) are projected to a corresponding projection plane (P, P1, P2, P3) by passing through the plurality of indication patterns (31A, 31B, 31C) of the plurality of diffraction optical elements or holograms (30A, 30B, 30C) to form a plurality of laser indications (H1, H2, H3) respectively."

Claims 2 to 8 are dependent claims.

Reasons for the Decision

1. Admissibility of the appeal

The appeal complies with the requirements of Articles 106 to 108 EPC and Rule 99 EPC. It is therefore admissible.

2. *Sufficiency of disclosure*

- 2.1 The application discloses the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 83 EPC).
- 2.2 The examining division argued that the claimed laser projection clock was not able to show the time throughout the day.

The examination division based its argument on the expression "grating" present in claim 1 as originally filed and throughout the description, but not in claim 1 of the sole request, where it was replaced by "diffraction optical element" and "hologram", see in particular point 1.3 of the grounds for the decision under appeal. The examining division did not give any reason for this approach. It seems to follow implicitly from point 1.4 of the grounds for the decision under appeal that the examining division considered the term "grating" to encompass the term "lens" and "hologram". The board can only speculate whether the examining division also considered the term "grating" to encompass the term "diffractive optical elements".

The examining division interpreted the term grating - and probably implicitly also the terms diffractive optical element and hologram - to designate a disk having a macroscopic slit shaped aperture, and the projection of a hand of the clock on the wall to be effected by light selectively transmitted through the slit shaped aperture, see decision under appeal point 1.3 and 1.4. The examining division reasoned that the optical axis of the pointer light source and the axis of rotation of the grating could not be coaxial. It followed in the eyes of the examining division that the

pointer light source could only illuminate part of the disk comprising the "grating". A hand could therefore only be projected on a wall during that part of the rotation when the slit was illuminated by the light beam.

The examining division apparently came to their interpretation of the term "grating" (and possibly "diffractive optical element" and "hologram") as a disk with a single macroscopic slit in view of figures 4 to 6.

- 2.3 The board therefore has to decide whether the examining division construed the invention within the meaning of Article 83 EPC in a correct manner.

The board considers that the assessment as to the requirements of Article 83 EPC will involve as a first step the determination of what the "invention" within the meaning of Article 83 EPC is and, as a second step, whether the invention determined in the first step is sufficiently disclosed.

Concerning the first step, the board considers it to be established case law that the requirement of sufficiency of disclosure relates to the invention defined in the claims, and in particular to the combination of structural and functional features of the claimed invention, see Case Law of the Boards of Appeal, 10th edition ("CLBA"), II.C.3.2, first paragraph.

Concerning the second step, Article 83 EPC explicitly prescribes that the entire patent application has to be taken into account in assessing whether the invention

is clearly and sufficiently disclosed to be carried out.

- 2.4 In the board's view the examining division construed the invention as defined in claim 1 incorrectly because it misinterpreted the description and the figures. This in turn is due to a somewhat confusing wording and unfortunate sketches in the figures.

The term diffraction optical element used in the claim as understood by a skilled person in the field of optics designates a structure that uses the mechanism of diffraction to shape radiation, typically visible light. The term is clear to a skilled person.

The description does not purport to define this term in any other way.

The confusion arises because of the inconsistency between the use of the term "grating" to describe the disk patterns producing the clock hand images throughout the application and the sketches shown in figures 4 to 6. In optics a grating is a periodic structure with a period on the order of the wavelength of radiation, typically light. This is inconsistent with the sketches depicted in figures 4 to 7, which do not show periodic structures.

Moreover, according to paragraph [0039] of the application as originally filed the gratings have indication patterns that are strip-like. The term "indication pattern" does not have any accepted meaning in the field of optical elements. A skilled person knows that diffractive elements have patterns of zones that affect transmitted or reflected light in different manners, thus creating a desired image. The statement

that the "indication pattern" is strip-like therefore suggests that the actual physical pattern on the disk may have the shape of slits of different length and thickness. This is all the more so since figures 4 to 6 depict the "indication pattern" to be essentially identical to the desired shape of the image, i.e. to have the shape of clock hands. However, this is prone to confusion as diffractive patterns or grating patterns as a rule bear no similarity to the image they produce.

This apparent inconsistency appears to the board to be resolvable taking into account paragraphs [0023] to [0026] of the description and figures 1 to 3.

The board notes that the disks in figures 1 to 3 have no indication of slits or apertures, which gives an indication that the figures 4 to 6 may have been a somewhat unfortunate choice of schematic sketch, rather than an depiction of the actual physical appearance of the claimed disk or the indication-pattern. This is corroborated by the disclosure in paragraphs [0023] to [0026] that the figures depict an "outside view" of the fixed gratings. The board has the impression that figures 4 to 7 are intended to depict the projected image of a laser beam after transmission through the disks, rather than the images of the diffractive pattern or hologram patterns on the disks themselves.

The board understands the examining division's difficulty with this inconsistent disclosure. It appears to be a rather unfortunate choice of sketching the invention which confuses rather than clearly disclose the invention. However, the manner in which the examining division construed the invention as defined in the claims is not reconcilable with the

ordinary meaning given to the terms in the claim in the technical field. A proper claim construction cannot be based on such an inherent contradiction if such contradiction can be resolved as indicated above.

2.5 A similar reasoning applies to the feature "hologram". A hologram is a recording of a wave field, viz. of amplitude and phase information. The transmission of a beam through a slit aperture cannot be considered to be a hologram. Therefore, as in the case of diffractive patterns, the examining division determined the invention within the meaning of Article 83 EPC incorrectly.

2.6 The board interprets the reasoning in point 1.6 of the decision under appeal to mean that the examining division considered in addition that providing diffractive microscopic patterns configured to produce rotating clock hands would surpass the normal capabilities of a skilled person and therefore would represent an undue burden.

This argument concerns the "second step" in the assessment of Article 83 EPC, see point 2.3 above.

2.7 The appellants submitted documents 1 to 4 in the form of screen-shots included in the statement of grounds of appeal to rebut this argument (these documents are not identified individually but reference is instead made to the statement setting out the grounds of appeal). The board can accept that documents 1 to 4 are evidence to the effect that transmission diffractive optical elements were known before the priority date. The evidence suggests, e.g. by forming a rectangular periodic pattern or the letters D-O-E as shown on pages 10 and 11 of the statement setting out the grounds of

appeal, that a person skilled in the field of diffractive optical elements was essentially capable of designing appropriate microstructures producing any desired shape, therefore also clock hands or a dial. This is consistent with the board's understanding of the knowledge of the skilled person in that field. In view of this it is not detrimental for meeting the requirements of Article 83 EPC that the application does not disclose more details of the required microstructures.

2.8 According to established case law, a successful objection of insufficient disclosure presupposes that there are serious doubts, substantiated by verifiable facts. In *ex parte* proceedings, the burden lies with the EPO (CLBA, III.G.5.1.2(c), 1st and 10th paragraphs; T 2340/12, Reasons 3.5; T 967/09, Reasons 6, 1st sentence). However, the examining division has not provided any verifiable facts for the doubts expressed in point 1.6 of the appealed decision. The submissions of the appellants are therefore sufficient to dispel the examining division's doubts.

3. *Remittal*

3.1 The board does not grant the appellants' main request but the auxiliary request because it considers remittal of the case for further prosecution justified.

3.2 According to Article 111(1) EPC, the board may either exercise any power within the competence of the department which was responsible for the decision appealed or remit the case to that department for further prosecution. According to Article 11 RPBA the board shall not remit a case to the department whose

decision was appealed for further prosecution, unless special reasons present themselves for doing so.

3.3 In the present case, the application was refused for insufficiency of disclosure. It is apparent from the file that a detailed examination of inventive step has not taken place during the first instance proceedings.

Moreover, the appellants have only provided reasons for setting aside the decision under appeal but no substantiated arguments in support of novelty or inventive step (cf. Article 12(3) RPBA); the mere statement that the invention is patented in other jurisdictions and the assertion that the disclosure is novel and inventive over the prior arts (statement of grounds, page 12) cannot replace a proper substantiation.

If the case were not remitted, the board would be the first to perform the examination of patentability, contrary to its main task of reviewing the decision under appeal in a judicial manner (cf. Article 12(2) RPBA).

Therefore, the board considers there to be special reasons for remittal.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the examining division for further prosecution.

The Registrar:

The Chairman:



L. Gabor

R. Bekkering

Decision electronically authenticated