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Case Number: T 1211/15 - 3.2.01

Application Number: 04792216.6

Publication Number: 1808334

IPC: B60R1/072

Language of the proceedings: EN

Title of invention:
MIRROR ANGLE ADJUSTER

Patent Proprietor:
Murakami Corporation

Opponent:
Dr. Dorothea Engelhard

Headword:

Relevant legal provisions:
EPC Art. 56

Keyword:
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Catchword:

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Case Number: T 1211/15 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 18 January 2018

Appellant: (Opponent)	Dr. Dorothea Engelhard Josef-Kamm-Ring 12 93096 Köfering (DE)
Representative:	Hoffmann Eitle Patent- und Rechtsanwälte PartmbB Arabellastraße 30 81925 München (DE)
Respondent: (Patent Proprietor)	Murakami Corporation 12-25 Miyamotocho Suruga-ku Shizuoka-shi Shizuoka 422-8569 (JP)
Representative:	Gill, Stephen Charles Mewburn Ellis LLP City Tower 40 Basinghall Street London EC2V 5DE (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 8 April 2015 concerning maintenance of the European Patent No. 1808334 in amended form.**

Composition of the Board:

Chairman	G. Pricolo
Members:	C. Narcisi
	P. Guntz

Summary of Facts and Submissions

I. European patent No. 1 808 334 was maintained in amended form by the decision of the Opposition Division posted on 8 April 2015. Against the decision an appeal was lodged by the Opponent on 9 June 2015 and by the Patentee on 15 June 2015 and the respective appeal fees were paid. The statement of grounds of appeal was filed by the Opponent and by the Patentee respectively on 18 August 2015 and 2 July 2015.

II. Oral proceedings were held on 18 January 2018. The Patentee withdrew its appeal thereby requesting as a Respondent that the Opponent's appeal be dismissed and that the patent be maintained in the form as maintained by the appealed decision (main and sole request). The Appellant (Opponent) requested that the appealed decision be set aside and that the patent be revoked.

III. Claim 1 reads as follows:

"A mirror angle controller comprising:

a pivot plate (H) which is attached to a reverse side of a mirror (M); and
an actuator (A) which holds the pivot plate (H),
wherein the actuator (A) comprises a housing (A1), a rod (A3) which pushes and pulls the pivot plate (H), and a motor (A6) which provides driving force to the rod (A3),
wherein, a ringed holder (121) which is placed to surround the rod (A3) is formed in the housing (A1),
wherein the pivot plate (H) comprises a ringed sliding part (H31) which is in contact with and arbitrarily slides on the holder (121), and an engaging part (H23) which is engaged with an end (A32) of the rod (A3),

a motor container (132), in which the motor (A6) is placed, on the pivot plate side of the housing (A1), the actuator (A) further comprising a cover (A2) which covers the motor container (132),
the housing (A1) is formed in a bowl shape,
and the holder (121) is formed on a rim of the housing (A1),
characterized in that
the actuator (A) further comprises a stopper (215) which prevents the pivot plate (H) from turning in a circumferential direction of the holder (121), and the stopper (215) is formed in the cover (A2)."

IV. The Appellant's arguments may be summarized as follows:

The subject-matter of claim 1 is not inventive over document HE2 (DE-A1-39 14 334) in view of further documents HE4 (EP-A2-278 310), HE1 (JP-A-2004-161 123, with patent family document HE1EP (EP-A1-1 419 934)), or HE5 (JP-A-11-25 50 27, with machine translation HE5').
The device of HE2 differs from the claimed subject-matter in that it does not include the feature implying that said stopper which prevents the pivot plate from turning in a circumferential direction of the holder is formed in the cover which covers the motor container (hereinafter designated as feature (i)). Instead, HE2 discloses a "slotted link 42" made of resin (HE2, column 3, lines 12-21) connected with the bottom of the housing and acting as a stopper. This feature (in conjunction with the specific arrangement of the rods 9 in the actuator housing, as set out in column 3, lines 21-25 of HE2) leads according to HE2 to an effective suppression of the vibrations of the pivot plate. However, as described in the same document (see HE2, column 3, lines 17, 21) the "slotted link" 42

("Kunststoffkulisse 42") provides sufficient play for the rod 9 to be able of moving sidewards (i.e. in a radial direction toward the central link 11, 13), in order to allow pivoting movement of the pivot plate. This play is indispensable, for otherwise any pivoting movement of the pivot plate would be prevented. Nonetheless, this play will necessarily lead to vibrations of the pivot plate and related noise, particularly when the pivot plate is in a tilted position, the rod then not being adequately guided and supported in the "slotted link 42".
Therefore, starting from HE2 the skilled person would face the technical problem of reducing the vibrations of the pivot plate.
Document HE4 provides a solution to this problem and the skilled person would obviously combine HE2 and HE4. Despite HE4 being quoted in HE2 (HE2, column 1, lines 20-24) as not being able to solve the problem of suppressing the vibrations of the mirror (mounted on the pivot plate), the skilled person would nevertheless not refrain from seeking a solution of this problem in HE4 too. Indeed, knowing that HE2 likewise does not succeed in providing a satisfactory solution, the skilled person would not discard the possibility that, contrary to expectations, applying the teaching of HE4 would reduce vibrations. Particularly, the skilled person would understand, that arranging a stopper 11, 12 in the motor cover, as shown in HE4, would solve the stated problem.

Similarly, the skilled person would in an obvious manner also find a solution to said problem in HE1 (HE1EP) (see figure 2, stoppers formed on "rear housing 22") or HE5 (see figure 2, stoppers 39), which documents likewise propose to dispose stoppers in the motor's cover.

The subject-matter of claim 1 lacks an inventive step over document HE1 or HE5 (HE5'), in view of document HE2.
HE5 discloses all of the claimed features, except for the feature reading "the holder is formed on a rim of the housing" (hereinafter designated as feature (ii)). It would be obvious for the skilled person in view of HE2, to form the holder (constituted by the flange 36 in the device HE5) on the rim of the housing, such that sealing of the housing is obtained by the engagement and sliding contact of the ringed holder 36 and of ringed sliding part 37. Such a modification is indeed suggested by HE2, disclosing the sliding engagement of holder 46 (formed on the housing) with ringed sliding part 45 formed on the pivot plate 41 (HE2, figure 4). This sliding engagement ensures according to HE2 appropriate sealing of the actuator housing's interior (see HE2, column 3, lines 5 to 10), and by translating this configuration into the device of HE5 seal members (e.g. see reference signs 6 and 28) in the device of HE5 could be dispensed with and also costs (including mounting costs) be saved. Thereby the skilled person would arrive at the subject-matter of claim 1 without an inventive step being involved.

A similar reasoning applies, according to the Appellant, when starting from document HE1, noting that the device of HE1 differs from the claimed device in that feature (ii) as well as the feature reading "a ringed holder which is placed to surround the rod is formed in the housing" (hereinafter designated as feature (iii)) is not known from HE1. However this feature would likewise be derived by the obvious combination of HE1 with HE2.

V. The Respondent's arguments may be summarized as follows:

The subject-matter of claim 1 is inventive over HE2, in view of further documents HE4, HE5 and HE1. The Appellant's reasoning is based on a false assumption, i.e. that the device of HE2 suffers from a technical problem residing in the vibrations of the pivot plate and the noise originated thereby, this assumption being by no means derivable from HE2. The contrary is actually true, considering that HE2 explicitly discloses that the specific arrangement of the rods 9 results in optimal suppression of vibrations in a circumferential direction (column 3, lines 20-26). Consequently, HE2 has to be taken at face value. In a radial direction too, the "slotted links 42" ensure stable guiding of the rods 9 without any significant play. Therefore considerable improvement is obtained as compared to HE4, which document is even quoted in HE2 (column 1, lines 20-24) as disclosing a device affected by a technical problem residing in the mirror's vibrations. In conclusion, for the stated reasons the skilled person would not combine HE2 with HE4.

For similar reasons as above the skilled person would not combine HE2 with HE1 or HE5, given the Appellant's reasoning being flawed by the aforementioned false assumption. Additionally, owing to the substantially differing configurations of the device of HE2, on the one hand, and of HE1, HE5, on the other hand, it would not at all be obvious for the skilled person where to install said stopper (even if the skilled person would consider combining HE1 and HE5).

Starting from HE5 or HE1, the combination with HE2 would not be obvious for the skilled person. First, contrary to the Appellant's opinion, HE5 and HE1 both do not disclose features (ii) and (iii). Thus, the combination with HE2 would inevitably require substantial redesign of the devices of HE5 and HE1. However, the skilled person would not have any motivation to perform such a substantial redesign of these devices, for the actuator's housing in these devices is already adequately sealed by various sealing members. In addition, the circumferential flanges 45, 46 disclosed in HE2 (see figure 4), despite being in sliding engagement (thus obtaining the sealing effect mentioned in HE2), are not disclosed in HE2 as having any support function, as evidently required by said features (ii) and (iii) of claim 1. For these reasons, the skilled person would not combine document HE5 or HE1 with HE2.

Reasons for the Decision

1. The appeal is admissible.

2. The subject-matter of claim 1 is not rendered obvious for the skilled person starting from HE2 and in view of HE4.

The Board follows the Respondent's reasoning in that the skilled person would not combine HE2 with HE4, for the device of HE4 is criticized in HE2 (column 1, lines 20-24) as not succeeding in suppressing the mirror's vibrations, the supporting structure securing the mirror's position not being sufficiently rigid. As was correctly argued by the Respondent, the rods 9 are specifically located (in the device of HE2) near the outer circumferential wall of the housing, and the pinion gear's 8 axis (meshing with the rack of one rod

9) is disposed at 90° to the other pinion gear's 8 axis (meshing with the rack of the other rod 9) (see HE2, column 3, lines 20-26). As a result, circumferential movement of one rod 9 is impeded or prevented by the opposed action of the other rod 9 and its associated pinion gear 8 (see also figure 1 in HE2), thus suppressing (or preventing) any unwanted vibrations. This is clearly not given in the device of HE4 (see figure 1), having two parallel disposed pinion gear axes engaging with respective racks of the rods 13. In addition, the "slotted link 42" guiding the rod 9 in the device of HE2 is considerably longer (in relation to the rod's length) than the corresponding slot (formed in the upper wall of the housing 3; see HE4, figure 2) guiding the rod 13 in the device of HE4, thus again leading to improved stability of the rod and reduced play and related vibrations.
In conclusion, both on the basis of the mentioned citation and criticism of the device of HE4 in document HE2, as well as on the basis of the actual configuration of the devices shown in HE2 and HE4, there would be no reason for the skilled person to combine in an obvious way these two documents (Article 56 EPC).

3. Similarly, the skilled person would not combine in an obvious way HE2 with HE1 or HE5. The Board again concurs with the Respondent's view that the Appellant's reasoning is based on the false assumption that the device of HE2 is affected by the very technical problem (of mirror's vibration) which HE2 actually sets out to solve (HE2, column 1, lines 20-24). In particular, there is no explicit or implicit disclosure in HE2 justifying the assumption that in the device of HE2 any significant mirror vibrations occur, e.g. through said rods 9 having sidewards play (see HE2, column 3, lines

17-21). Further, it would anyway not be clear for the skilled person how said stoppers provided in HE1 or HE2 at an interior and (radially) central portion of the actuator's housing would effectively contribute to suppress the alleged vibrations of the pivot plate (or of the mirror) supposedly occurring at a circumferential outer location of the pivot plate, owing to said lateral (radial) play of the rods 9. Indeed, such a technical effect is not suggested in HE5 or HE1.
For these reasons it is concluded that the skilled person would not combine HE2 with HE5 or HE1, particularly since there is no basis in HE2 for the assumption said technical problem actually exists in the device disclosed therein, and since it is not at all apparent that said problem would be solved by said features (i.e. stoppers) disclosed in HE5 and HE1. Therefore the claimed subject-matter is not rendered obvious by HE2 in view of HE5 or HE1.

4. The subject-matter of claim 1 does not result in an obvious manner from HE5 or HE1 in view of HE2.
First, contrary to the Appellant's view, aforementioned features (ii) (i.e. "the holder is formed on a rim of the housing") and (iii) (i.e. "a ringed holder which is placed to surround the rod is formed in the housing") are not disclosed in HE5.
In effect, the protrusions 36 formed or disposed on the actuator's housing can by no means be regarded as constituting a "ringed holder" "placed to surround the rods", for these protrusions do not form a ring and moreover do not enclose or surround the rods 12 (see figures 1, 2, 7 in HE5). The actual "ringed holder" supporting the pivot plate 2 in the device of HE5 is formed by hemispherical or "ringed" part 9 (supporting hemispherical constructional element 20; see HE5,

figure 1), which however does not surround the rods 12. Evidently, the skilled person would have no motivation to provide (in the device of HE5) an equivalent hemispherical or "ringed holder" on a rim of the housing (pursuant to feature (iii)) since this would amount to implementing a second (unnecessary and superfluous) "ringed holder" performing the same supporting function as "ringed holder 9", thus essentially doubling or duplicating its supporting function. Also, this is not suggested by HE2, not disclosing (as noted by the Respondent) that circumferential flanges 45 and 46 have any substantial support function.
Hence, the skilled person would have no reason and no incentive, even in view of HE2, to modify the protrusions 36 (and consequently protrusions 37 too) in the way suggested by the Appellant, since this would moreover imply extensive and substantial redesign of the device of HE5. In particular, this redesign would encompass "ringed holder 9" and hemispherical constructional element 20 too, as clearly suggested by HE2, disclosing a central supporting pivot rod 11 instead, formed in the base of the actuator's housing and providing support for tilting pivot plate 2 (see HE2, figure 4).
For these reasons the subject-matter of claim 1 is not rendered obvious for the skilled person starting from document HE5 in view of HE2 (Article 56 EPC).

Substantially similar reasons apply to the allegedly obvious combination of HE1 and HE2 as for the above mentioned combination of HE5 and HE2. Indeed, the device of HE1 lacks both features (ii) and (iii) (as conceded by the Appellant itself) and moreover shows a configuration analogous or similar to that of HE5, given the ringed (hemispherical) holder 22a formed in

the actuator's housing and the corresponding ringed (essentially hemispherical) "sliding portion" 11 provided on the pivot plate 1 (see HE1 (HE1EP), figure 2, paragraph [0020]), which are also centrally provided in the device of HE1.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

A. Vottner G. Pricolo

Decision electronically authenticated