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(54) **A METHOD FOR AUTOMATICALLY SELECTING A POLISHING PROCESS FOR A LENS**

(57) This method for selecting in an automated manner a polishing process for an edged lens fitted in a frame comprises: determining (10) in an automated manner whether the lens is embedded in the frame; if the lens is

embedded in the frame, selecting (12) a soft polishing process; if the lens is not embedded in the frame, selecting (14) a standard polishing process.

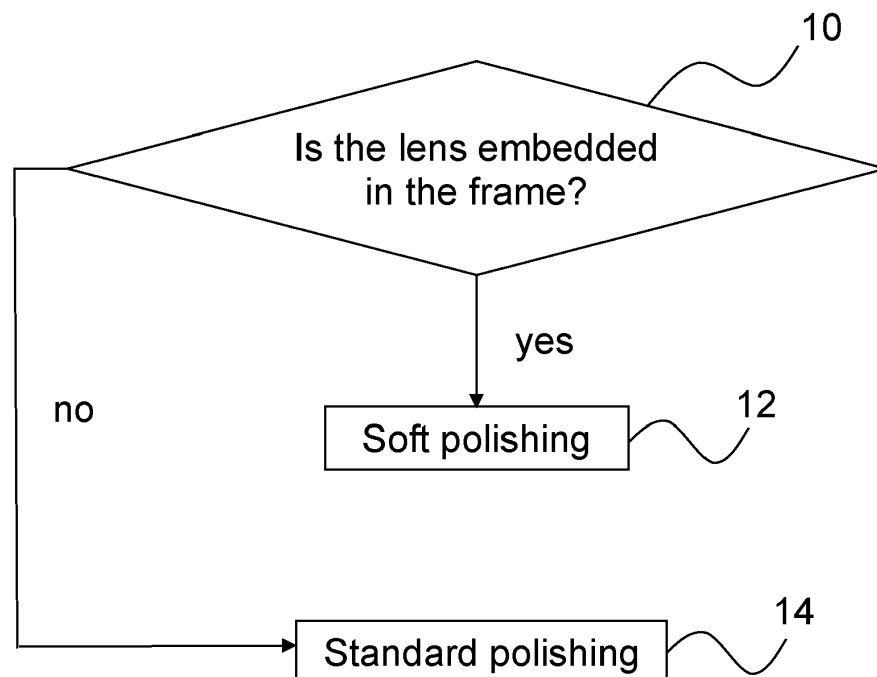


FIG.1

Description

FIELD OF THE INVENTION

[0001] The present invention relates to a method for selecting in an automated manner a polishing process for an edged lens fitted in a frame.

BACKGROUND OF THE INVENTION

[0002] In the field of edging technology for ophthalmic lenses, the polishing step is often regarded as a bottleneck, because this is the most impacting step in terms of equipment productivity. Indeed, even if only around 30 percent of eyeglass orders request polishing, the polishing step is a huge contributor to productivity savings.

[0003] No satisfying solution is provided in the state of the art for improving industrial performance in this respect.

[0004] Thus, there is a need for managing a new way of determining the polishing process to be implemented for an edged lens fitted in a frame, so as to increase productivity.

SUMMARY OF THE INVENTION

[0005] An object of the present disclosure is to overcome the above-mentioned drawbacks of the prior art.

[0006] To that end, the present disclosure provides a method for selecting in an automated manner a polishing process for an edged lens fitted in a frame, remarkable in that it comprises:

determining in an automated manner whether the lens is embedded in the frame;
if the lens is embedded in the frame, selecting a soft polishing process;
if the lens is not embedded in the frame, selecting a standard polishing process.

[0007] Thus, the method according to the disclosure makes it possible to automatically decide whether the polishing process to be implemented should be a soft one or a standard one, without any human intervention. As a result, productivity is greatly improved.

[0008] In an embodiment, the determining step is carried out by a calculation engine.

[0009] In an embodiment, the determining step comprises comparing in an automated manner the maximum edge thickness of the lens with the frame thickness.

[0010] In an embodiment, the frame thickness is provided by a tracer.

[0011] In an embodiment, the frame thickness is extracted from a frame shape file.

[0012] In an embodiment, the maximum edge thickness is obtained by comparing edge thicknesses of the lens at predetermined radii provided by a predetermined model of the lens and selecting the highest value among

these edge thicknesses as the maximum edge thickness.

[0013] To the same end as mentioned above, the present disclosure also provides a computer program product, remarkable in that it comprises one or more sequences of instructions that are accessible to a processor and that, when executed by that processor, cause that processor to implement a method for selecting in an automated manner a polishing process for an edged lens fitted in a frame, comprising:

determining in an automated manner whether the lens is embedded in the frame;
if the lens is embedded in the frame, selecting a soft polishing process;
if the lens is not embedded in the frame, selecting a standard polishing process.

[0014] To the same end as mentioned above, the present disclosure further provides a non-transitory information storage medium, remarkable in that it stores one or more sequences of instructions that are accessible to a processor and that, when executed by that processor, cause that processor to implement a method for selecting in an automated manner a polishing process for an edged lens fitted in a frame, comprising:

determining in an automated manner whether the lens is embedded in the frame;
if the lens is embedded in the frame, selecting a soft polishing process;
if the lens is not embedded in the frame, selecting a standard polishing process.

[0015] As particular features and advantages of the computer program product and information storage medium are similar to those of the method, they are not repeated here.

[0016] The computer program product is advantageously configured for executing the method in any of its execution modes.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] For a more complete understanding of the description provided herein and the advantages thereof, reference is now made to the brief descriptions below, taken in connection with the accompanying drawings and detailed description, wherein like reference numerals represent like parts.

[0018] FIG. 1 is a flow diagram showing steps of a method according to the present disclosure, in a particular embodiment.

DETAILED DESCRIPTION OF EMBODIMENTS

[0019] In the description which follows, the drawing figures are not necessarily to scale and certain features may be shown in generalized or schematic form in the

interest of clarity and conciseness or for informational purposes. In addition, although making and using various embodiments are discussed in detail below, it should be appreciated that as described herein are provided many inventive concepts that may be embodied in a wide variety of contexts. Embodiments discussed herein are merely representative and do not limit the scope of the invention. It will also be obvious to one skilled in the art that all the technical features that are defined relative to a process can be transposed, individually or in combination, to a device and conversely, all the technical features relative to a device can be transposed, individually or in combination, to a process.

[0020] The terms "comprise" (and any grammatical variation thereof, such as "comprises" and "comprising"), "have" (and any grammatical variation thereof, such as "has" and "having"), "contain" (and any grammatical variation thereof, such as "contains" and "containing"), and "include" (and any grammatical variation thereof such as "includes" and "including") are open-ended linking verbs. They are used to specify the presence of stated features, integers, steps or components or groups thereof, but do not preclude the presence or addition of one or more other features, integers, steps or components or groups thereof. As a result, a method, or a step in a method, that "comprises", "has", "contains", or "includes" one or more steps or elements possesses those one or more steps or elements, but is not limited to possessing only those one or more steps or elements.

[0021] Figure 1 shows steps of a method according to the present disclosure for selecting in an automated manner a polishing process for an edged lens fitted in a frame, in a particular embodiment.

[0022] A first step 10 of the method comprises determining in automated manner whether the lens is embedded in the frame. A lens is considered to be embedded in a frame when no edge part of the lens is visible from the outside part of the frame. In terms of calculation, it means, as a basic rule, that the maximum edge thickness of the lens is lower than the minimum thickness of the frame. As an optimized rule, it means that the edge thickness of the lens is lower than the frame thickness at every angle of a predetermined value, for example every 10°.

[0023] This step may be carried out by a calculation engine.

[0024] Step 10 may for example comprise, in an embodiment where the above-mentioned basic rule is applied, comparing in an automated manner, for example in the calculation engine, the maximum edge thickness of the lens with the thickness of the frame.

[0025] The thickness of the frame may be provided by a tracer. It may be extracted from a frame shape file storing values of thicknesses for a plurality of frames having various shapes.

[0026] The maximum edge thickness of the lens may be obtained by using a predetermined model of the lens, defined as a full description of the tridimensional lens, comprising the front surface of the lens, the back surface

of the lens and the center thickness of the lens, in a same referential.

[0027] The lens model will provide the values of the edge thickness of the lens at predetermined radii. Then, the highest value among these edge thickness values will be selected as the maximum edge thickness.

[0028] If it is determined at step 10 that the lens is embedded in the frame, the following step is step 12, which consists in selecting a soft polishing process for the lens fitted and embedded in the frame. Soft polishing is well known per se and will thus not be described in detail here.

[0029] Otherwise, if it is determined at step 10 that the lens is not embedded in the frame, the following step is step 14, which consists in selecting a standard polishing process for the lens fitted, but not embedded, in the frame. Standard polishing is well known per se and will thus not be described in detail here.

[0030] Standard polishing makes it possible to obtain a shiny lens edge, whereas soft polishing is faster on the equipment and provides a lens edge that is not as shiny as the one obtained thanks to standard polishing.

[0031] Of course, in case polishing is not requested in the order from the Eye Care Professional (ECP) or customer, no polishing step is carried out and it is not necessary to apply the method according to the present disclosure. Therefore, optionally, before step 10, a preliminary step may be performed, consisting of checking whether the order from the ECP or customer includes a request for polishing the edged lens fitted in the frame.

[0032] In a particular embodiment, the method according to the disclosure is computer-implemented. Namely, a computer program product comprises one or more sequences of instructions that are accessible to a processor and that, when executed by the processor, cause the processor to carry out steps of the method for selecting in an automated manner a polishing process for an edged lens fitted in a frame. The processor is configured for carrying out steps 10, 12 and 14 as described above.

[0033] The software may be hosted for example remotely in a cloud, or locally in a computer.

[0034] The sequence(s) of instructions may be stored in one or several non-transitory computer-readable storage medium/media, including a predetermined location in a cloud.

[0035] Although representative methods and devices have been described in detail herein, those skilled in the art will recognize that various substitutions and modifications may be made without departing from the scope of what is described and defined by the appended claims.

Claims

1. A method for selecting in an automated manner a polishing process for an edged lens fitted in a frame, **characterized in that** it comprises:

determining (10) in an automated manner

whether said lens is embedded in said frame;
 if said lens is embedded in said frame, selecting
 (12) a soft polishing process;
 if said lens is not embedded in said frame, se-
 lecting (14) a standard polishing process.

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lecting (14) a standard polishing process.

2. A method according to claim 1, **characterized in that** said determining (10) is carried out by a calculation engine.

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3. A method according to claim 1 or 2, **characterized in that** said determining (10) comprises comparing in an automated manner the maximum edge thickness of said lens with the frame thickness.

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4. A method according to claim 3, **characterized in that** said frame thickness is provided by a tracer.

5. A method according to claim 3 or 4, **characterized in that** said frame thickness is extracted from a frame shape file.

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6. A method according to claim 3, 4 or 5, **characterized in that** said maximum edge thickness is obtained by comparing edge thicknesses of said lens at predetermined radii provided by a predetermined model of said lens and selecting the highest value among said edge thicknesses as the maximum edge thickness.

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7. A computer program product, **characterized in that** it comprises one or more sequences of instructions that are accessible to a processor and that, when executed by said processor, cause said processor to implement a method for selecting in an automated manner a polishing process for an edged lens fitted in a frame, comprising:

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determining (10) in an automated manner
 whether said lens is embedded in said frame;
 if said lens is embedded in said frame, selecting
 (12) a soft polishing process;
 if said lens is not embedded in said frame, se-
 lecting (14) a standard polishing process.

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8. A non-transitory information storage medium, **characterized in that** it stores one or more sequences of instructions that are accessible to a processor and that, when executed by said processor, cause said processor to implement a method for selecting in an automated manner a polishing process for an edged lens fitted in a frame, comprising:

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determining (10) in an automated manner
 whether said lens is embedded in said frame;
 if said lens is embedded in said frame, selecting
 (12) a soft polishing process;
 if said lens is not embedded in said frame, se-

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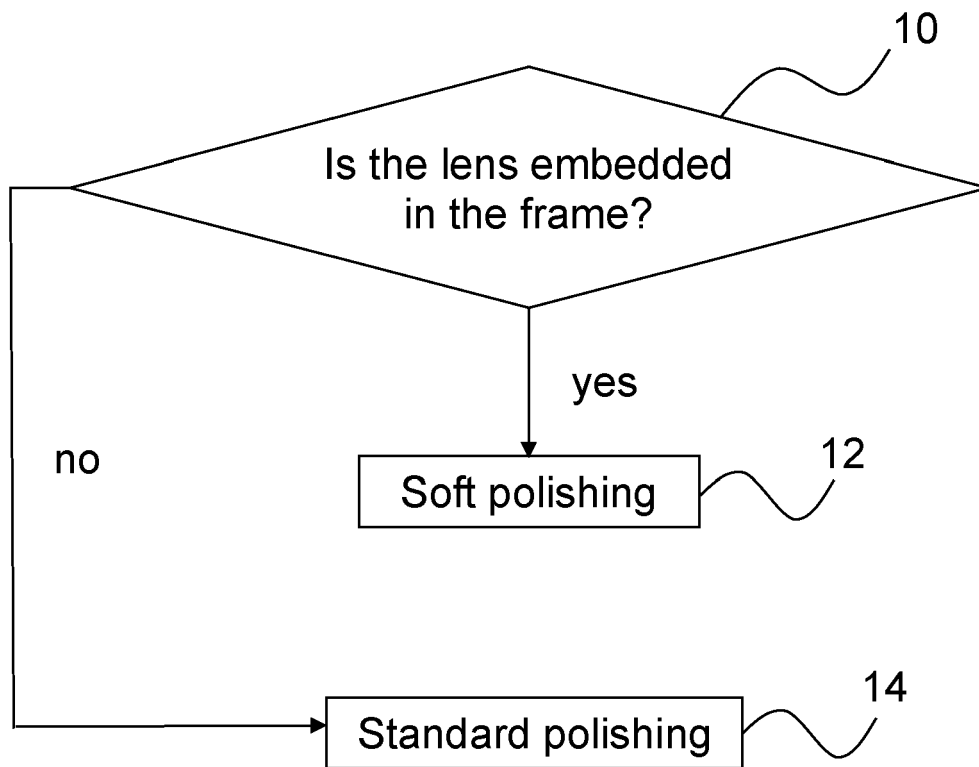


FIG.1



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Application Number

EP 22 30 6444

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC) B24B
Place of search Munich		Date of completion of the search 9 March 2023	Examiner Herrero Ramos, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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