Appeal Decision

Appeal No. 2020-5906

Appellant CKD Corporation

Patent Attorney KAWAGUCHI, Mitsuo

The case of appeal against the examiner's decision of refusal of Japanese Patent Application No. 2018-227016, entitled "PROJECTION DEVICE AND THREE-DIMENSIONAL MEASURING APPARATUS" (the application published on June 11, 2020, Japanese Unexamined Patent Application Publication No. 2020-91136, number of claims: 9) has resulted in the following appeal decision.

Conclusion

The examiner's decision is revoked.

The Invention of the present application shall be granted a patent.

Reason

No. 1 History of the procedures

The present application is a patent application filed on December 4, 2018. A written opinion was submitted on March 13, 2020 in response to a notice of reasons for refusal issued on February 19, 2020. An examiner's decision of refusal (hereinafter referred to as "Examiner's decision") was issued on March 30, 2020 (date of delivery of a certified copy: April 7, 2020).

Against this, an appeal against the examiner's decision of refusal was made on April 30, 2020.

No. 2 The Invention

The inventions according to Claims 1 to 9 of the present application (hereinafter referred to as "the Invention 1", etc. according to claim numbers) are as specified by the matters recited in Claims 1 to 9 of the scope of claims originally attached to the application.

"[Claim 1]

A projection device for projecting predetermined pattern light to a predetermined

object to be measured, in three-dimensional measurement on the object to be measured, comprising:

a light source which emits predetermined light;

a pattern generation unit which converts the light incident from the light source to pattern light to be emitted; and

a projection optical system which causes the pattern light emitted from the pattern generation unit to be imaged on the object to be measured, wherein

the pattern generation unit includes

a plurality of grid members having grid patterns formed by alternately arranging light transmission parts which transmit light at a predetermined light transmittance and light-blocking parts which block at least a part of light, in a first direction, the grid members being arranged opposite each other in a second direction orthogonal to the first direction, and

grid-moving means which can change relative positional relationship of the grid members with respect to the first direction,

thereby changing a period of pattern light to be projected on the object to be measured.

[Claim 2]

The projection device recited in Claim 1, wherein the grid patterns formed in the grid members are the same.

[Claim 3]

The projection device recited in Claim 1 or 2, wherein

the pattern generation unit is

configured to generate long-period pattern light by arranging two grid members so that a light-blocking part of the grid pattern in one of the two grid members opposite each other in the second direction and a light-blocking part of the grid pattern in the other grid member are adjacent to each other in the first direction, and

configured to generate short-period pattern light by arranging two grid members so that a light-blocking part of the grid pattern in the one grid member and a light-blocking part of the grid pattern in the other grid member are separated from each other in the first direction.

[Claim 4]

The projection device recited in Claim 3, wherein

the pattern generation unit is

configured to generate the long-period pattern light by arranging two grid members so that an end on one side in the first direction of a light-blocking part of the

grid pattern in the one grid member and an end on the other side in the first direction of a light-blocking part of the grid pattern in the other grid member are aligned in the first direction.

[Claim 5]

The projection device recited in Claim 3, wherein

the pattern generation unit is

configured to generate the long-period pattern light by arranging two grid members so that a predetermined area including the end on the other side in the first direction of the light-blocking part of the grid pattern in the one grid member and a predetermined area including the other end in the first direction of the light-blocking part of the grid pattern in the other grid member overlap in the first direction.

[Claim 6]

The projection device recited in one of Claims 1 to 5, wherein

the grid members include one fixed grid member, and at least one movable grid member arranged so as to be displaced relative to the fixed grid member.

[Claim 7]

The projection device recited in one of Claims 1 to 6, wherein

the light-blocking part includes a plurality of sections different in transmittance.

[Claim 8]

The projection device recited in one of Claims 1 to 7 configured to project pattern light having a stripe light intensity distribution, as the pattern light.

[Claim 9]

A three-dimensional measuring apparatus comprising:

the projection device recited in one of Claims 1 to 8;

imaging means which can image a predetermined range of the object to be measured on which the pattern light is projected; and

image processing means which can execute three-dimensional measurement on the object to be measured on the basis of image data obtained by the imaging means."

No. 3 Outline of reasons for refusal stated in the examiner's decision

The outline of reasons for refusal stated in the examiner's decision is as follows.

Reason 1

Inventions 1 to 6, 8, and 9 are inventions described in the following Cited Document 1. Thus, the Appellant should not be granted a patent for the inventions under the provisions of Article 29(1)(iii) of the Patent Act.

Reason 2

Inventions 1 to 6, 8, and 9 are inventions which could have been easily made by a person ordinarily skilled in the art of the inventions before the filing of the application thereof on the basis of the invention described in the following Cited Document 1. Thus, the Appellant should not be granted a patent for the inventions under the provisions of Article 29(2) of the Patent Act.

Invention 7 is an invention which could have been easily made by a person ordinarily skilled in the art of the invention before the filing of the application thereof on the basis of the inventions described in the following Cited Documents 1 and 2. Thus, the Appellant should not be granted a patent for the invention under the provisions of Article 29(2) of the Patent Act.

Note

Cited Document 1: Japanese Unexamined Patent Application Publication No. 2005-172459

Cited Document 2: Japanese Unexamined Patent Application Publication No. 2016-166765

No. 4 Cited Documents and Cited Inventions

1 Cited Document 1

Cited Document 1 describes the following matters with drawings (the underlines were added by the body).

"[0020]

The following is a description about an embodiment of the invention with reference to drawings.

FIG. 1 is a perspective view showing an overall configuration of a grid pattern projection shape measuring apparatus relating to one embodiment of the invention. As shown in FIG. 1, the grid pattern projection shape measuring apparatus 10 (hereinafter also referred to as simply "the measuring apparatus 10") comprises a measurement head 12, a power supply device driving part 14, a control part 16, and a monitor 18, and is configured to receive by the measurement head 12 three-dimensional shape information and pattern (texture) information of a body to be measured 2, output the three-dimensional

shape information and the pattern information to the control part 16 via the power supply device driving part 14, synthesize by the control part 16 the three-dimensional shape information with the pattern information to generate a three-dimensional image of the body to be measured 2, and display the image on the monitor 18. By operating a keyboard 20 and a mouse 22 connected to the control part 16, an angle of the three-dimensional image displayed on the monitor 18 can be modified or the displayed contents can be changed.

[0021]

The measurement head 12 receiving the three-dimensional shape information uses grid-projection moire topography. In FIG. 1, the grid plane Pg shown by dashed-two dotted lines located forward of the measurement head 12 is an imaginary reference grid plane in grid-projection moire topography. A basic configuration and function of the measurement head 12 as a grid-projection moire device are described with FIG. 2. FIG. 2 is a plan view showing a basic configuration and function of the measurement head 12 as a grid-projection moire device.

[0022]

As shown in FIG. 2, the measurement head 12 includes a projection optical system 26 and an observation optical system 28. The projection optical system 26 includes a grid illumination system (not shown) consisting of a projection lamp, a heat-ray cut filter, and a condenser lens; a projection grid 40 serving as a first reference grid; and a projection lens 42. The observation optical system 28 includes an imaging lens 44, an observation reference grid (imaging grid) 46 serving as a second reference grid, a field lens, a folding mirror, and a television optical system (not shown) consisting of a field lens, a turning mirror, and a CCD camera.

[0023]

The projection lens 42 and the imaging lens 44 are mounted so that optical axes Ax1 and Ax2 may be parallel to each other. The grid illumination system (not shown) is arranged to illuminate the projection grid 40 from diagonally behind on the left with respect to the optical axis Ax1. An image of the projection lamp is imaged substantially in an entrance pupil position of the projection lens 42.

[0024]

The observation reference grid 46 is arranged on the optical axis Ax2 with the field lens and the turning mirror of the television optical system (not shown). The CCD camera is arranged on an optical axis turned at a right angle with respect to the optical axis Ax2 by the turning mirror.

[0025]

The projection grid 40 and the observation reference grid 46 both have grid lines extended upward and downward (direction perpendicular to a paper surface) with the same pitch, and are arranged on the same plane orthogonal to the optical axes Ax1 and Ax2. The projection grid 40 is arranged in a conjugated positional relationship with the imaginary reference grid plane Pg so that an image of the projection grid 40 may be formed on the imaginary reference grid plane Pg. The observation reference grid 46 is also arranged in a conjugated positional relationship with the imaginary reference grid plane Pg so that an image of the imaginary reference grid plane Pg may be formed on the observation reference grid 46.

[0026]

The measurement head 12 is configured to project an image of the projection grid 40 on the body to be measured 2 by the projection optical system 26, to form a deformation grid image formed by the projection on the body to be measured 2 on the observation reference grid 46 by the observation optical system 28, and to observe moire stripes generated by the imaging."

"[0033]

As shown in FIG. 3(b), the projection grid 40 is formed by overlapping an element grid 41 arranged on the side of the projection lamp (not shown) and an element grid 43 arranged on the body to be measured 2 (see FIG. 2) so that grid lines (straight lines) thereof may be parallel to each other. Each of the two element grids 41, 43 is a binary grid in which transmittance of projection light varies in a substantially binary manner between a light opaque region B which forms light opaque grid lines 45, 47 and a light transparent region W which forms light transparent grid lines 61, 63. The element grids are substantially the same in grid line width, grid pitch P, and a line width ratio (1:1) between the light opaque region B or the light opaque grid lines 45, 47, and the light transparent region W or the light transparent grid lines 61, 63.

[0034]

The projection grid 40 is configured so that the two element grids 41, 43 can be relatively slidable in a lateral direction (indicated by the arrow in the figure) perpendicular to the grid lines by means of a uniaxial moving stage 49, as shown in detail in FIG. 3(a). The uniaxial moving stage 49 is composed of an upper plate 51 which supports the one element grid 43 mounted on a support frame 48, a middle plate 53 which movably supports the upper plate 51 so as to be moved in the moving direction and fixedly supports the other element grid 41, and an adjustment screw 54. When an operator operates the adjustment screw 54, the upper plate 51 supporting the one element grid 43 can be moved

in the moving direction, relative to the middle plate 53 supporting the other element grid 41, thereby enabling lateral slide adjustment.

[0035]

The lateral slide adjustment allows the projection grid 40 to arbitrarily vary the line width ratio between the light opaque region B and the light transparent region W from a state (1:1) where the light opaque grid lines 45, 47 of the two element grids 41, 43 completely overlap with each other to a state (e.g., 1.8: 1, see FIG. 3(c)) where the light opaque grid lines 45, 47 partially overlap each other. In place of the adjustment screw 54, an electric actuator may be used, and control signals from the control part 16 are output via the power supply device driving part 14 through input operation from the keyboard 20 shown in FIG. 1, to drive the actuator based on the control signals for the lateral slide adjustment."

"[0039]

As shown in FIG. 4(a), when the grid lines 45, 47 of the two element grids 41, 43 constituting the projection grid 40 substantially overlap each other, as shown in FIG. 4(b), the line width ratio between the light opaque region B and the light transparent region W of the projection grid 40 is 1: 1. The projection grid 40 functions as a binary grid for projection light. Thus, as shown in FIG. 4(c), a transmission distribution of projection light varies in a substantially binary manner (0, 1) in a boundary part between the light opaque region B and the light transparent region W."

"[0041]

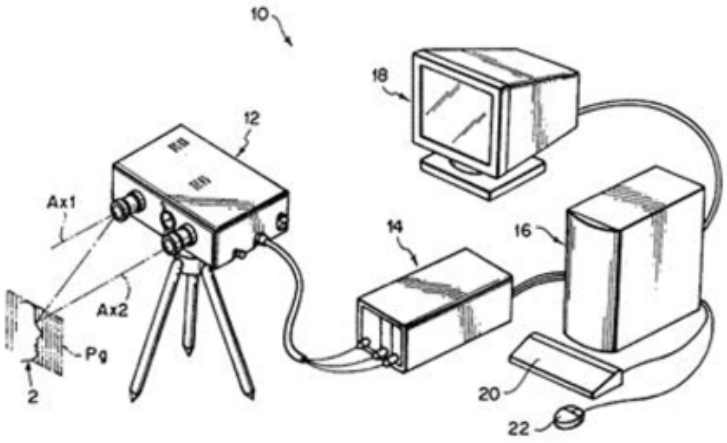
As shown in FIG. 4(a'), when the two element grids 41, 43 constituting the projection grid 40 are slid laterally so that only parts of the grid lines 45, 47 may overlap each other, as shown in FIG. 4(b'), the line width ratio between the light opaque region B and the light transparent region W of the projection grid 40 varies (e.g., 1. 3:1). The grid pitch P does not change due to the lateral slide. The projection grid 40 functions as a binary grid for projection light. Thus, as shown in FIG. 4(c'), the transmission distribution of projection light varies in a substantially binary manner (0, 1) in the boundary part between the light opaque region B and the light transparent region W."

"[0050]

The above embodiment shows an example in which the invention is applied to a grid-projection moire device. This invention can be applied to a grid-irradiation moire device described in Patent Document 1 and other grid pattern projection shape measuring

devices described in Patent Documents 3 and 4, as well."

"[FIG. 1]



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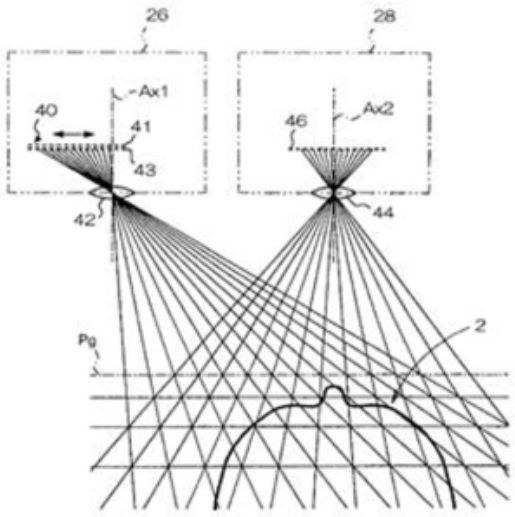
"[FIG. 2]



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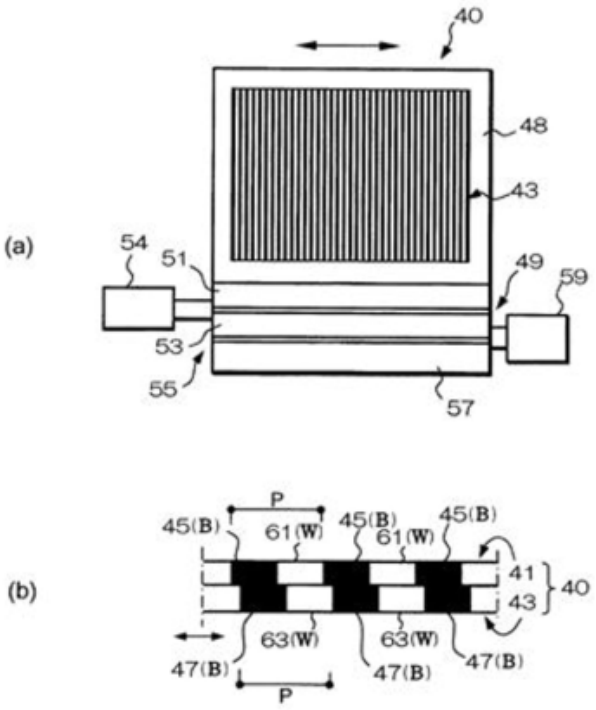
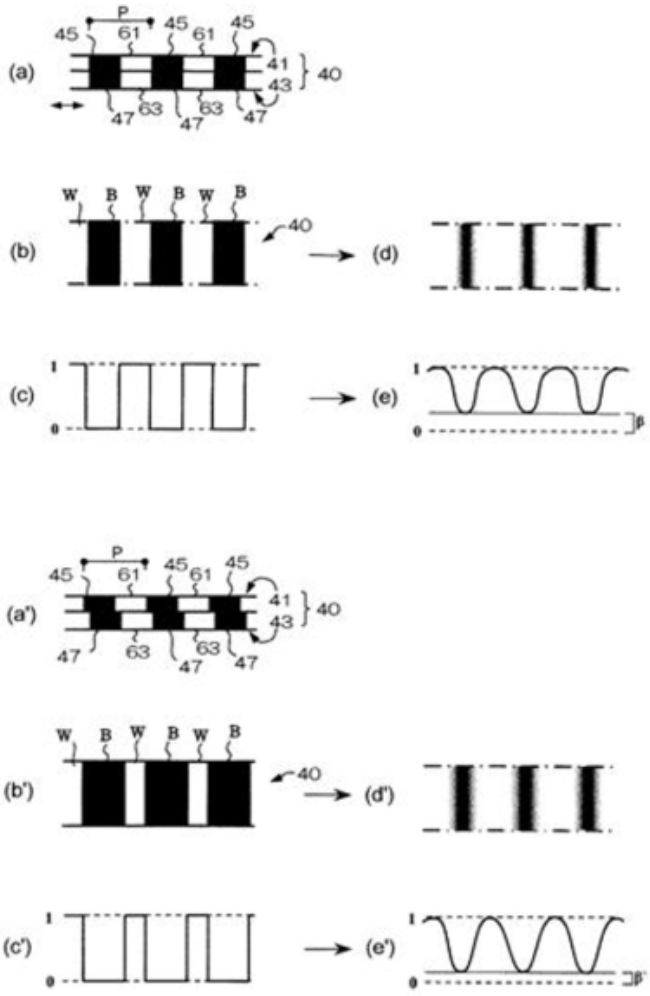
"[FIG. 3]


(a)
40
48
43
54
51
49
59
53
55
57
(b)
P
45(B)
61(W)
45(B)
61(W)
45(B)
41
43
40
63(W)
63(W)
47(B)
47(B)
47(B)
P
(c)
W
B
W
B
W
B
40
P

"

"[FIG. 4]



"

Comprehensively considering the contents of the above descriptions and drawings, it is recognized that Cited Document 1 describes the following invention (hereinafter referred to as "the Cited Invention").

[Cited Invention]

"A grid pattern projection shape measuring apparatus 10 comprising a measurement head 12 equipped with a projection optical system 26 and an observation optical system 28 ([0020], [0022], [FIG. 1]), wherein

the projection optical system 26 includes a grid illumination system consisting of a projection lamp, a heat-ray cut filter, and a condenser lens; a projection grid 40 serving as a first reference grid; and a projection lens 42, ([0022], [FIG. 2])

the grid illumination system is arranged to illuminate the projection grid 40 from

diagonally behind on the left with respect to the optical axis Ax1, and an image of the projection lamp is imaged substantially in an entrance pupil position of the projection lens 42, ([0023], [FIG. 2])

the projection grid 40 has grid lines extended upward and downward with the same pitch, which are arranged on the same plane orthogonal to the optical axis Ax1, the projection grid 40 is arranged in a conjugated positional relationship with the imaginary reference grid plane Pg so that an image of the projection grid 40 may be formed on the imaginary reference grid plane Pg, and an image of the projection grid 40 is formed on the body to be measured 2 by the projection optical system 26, ([0025]-[0026], [FIG. 2])

the projection grid 40 is formed by overlapping an element grid 41 arranged on the side of the projection lamp and an element grid 43 arranged on the body to be measured 2 so that grid lines (straight lines) thereof may be parallel to each other, each of the two element grids 41, 43 is a binary grid in which transmittance of projection light varies in a substantially binary manner between a light opaque region B which forms light opaque grid lines 45, 47 and a light transparent region W which forms light transparent grid lines 61, 63, the element grids are substantially the same in grid line width, grid pitch P, and a line width ratio (1:1) between the light opaque region B or the light opaque grid lines 45, 47, and the light transparent region W or the light transparent grid lines 61, 63, ([0033], [FIG. 3])

the projection grid 40 is configured so that the two element grids 41, 43 can be relatively slidable in a lateral direction perpendicular to the grid lines by means of a uniaxial moving stage 49, the uniaxial moving stage 49 is composed of an upper plate 51 which supports the one element grid 43 mounted on a support frame 48, and a middle plate 53 which movably supports the upper plate 51 so as to be moved in the moving direction and fixedly supports the other element grid 41, and an adjustment screw 54, such that when an operator operates the adjustment screw 54, the upper plate 51 supporting the one element grid 43 can be moved in the moving direction, relative to the middle plate 53 supporting the other element grid 41, thereby enabling lateral slide adjustment, ([0034] [FIG. 3])

the lateral slide adjustment allows the projection grid 40 to arbitrarily vary the line width ratio between the light opaque region B and the light transparent region W from a state (1:1) where the light opaque grid lines 45, 47 of the two element grids 41, 43 completely overlap each other to a state (e.g., 1.8: 1) where the light opaque grid lines 45, 47 partially overlap each other, and the grid pitch P does not change due to the lateral slide ([0035], [0041])."

2 Cited Document 2

It is recognized that Cited Document 2 describes the following technical matters (hereinafter referred to as "Described matters in Cited Document 2").

[Described matters in Cited Document 2]

"A three-dimensional measuring apparatus for measuring a three-dimensional shape of a measurement object 1 by allowing irradiation light L from a light source 20 to pass through a slit grid-like transmission plate 30 to be projected as projection pattern light Lp on the measurement object 1 ([0037], [FIG. 1]), wherein

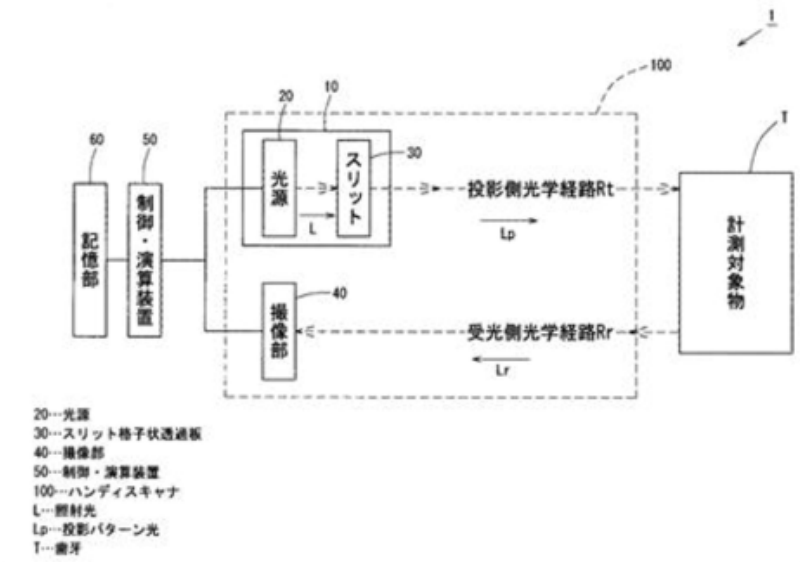
the slit grid-like transmission plate 30 is one of:

a slit grid-like transmission plate 30a formed by alternately arranging opaque sections 31 and transparent sections 32 formed in an X1 direction, in a Y1 direction with the same width ([0047]. [FIG. 9] (a));

a narrow-width slid grid-like transmission plate 30b having transparent sections 32b smaller in width than opaque sections 31b ([0047], [FIG. 9] (b)); and

a gradation slit grid-like transmission plate 30c formed by alternately arranging gradation opaque sections 31c in which gradation varies gradually in the Y1 direction and gradation transparent sections 32c, wherein the width of the gradation transparent sections 32c is smaller than that of the gradation opaque sections 31c ([0047], [FIG. 9] (c))."

"[FIG. 1]

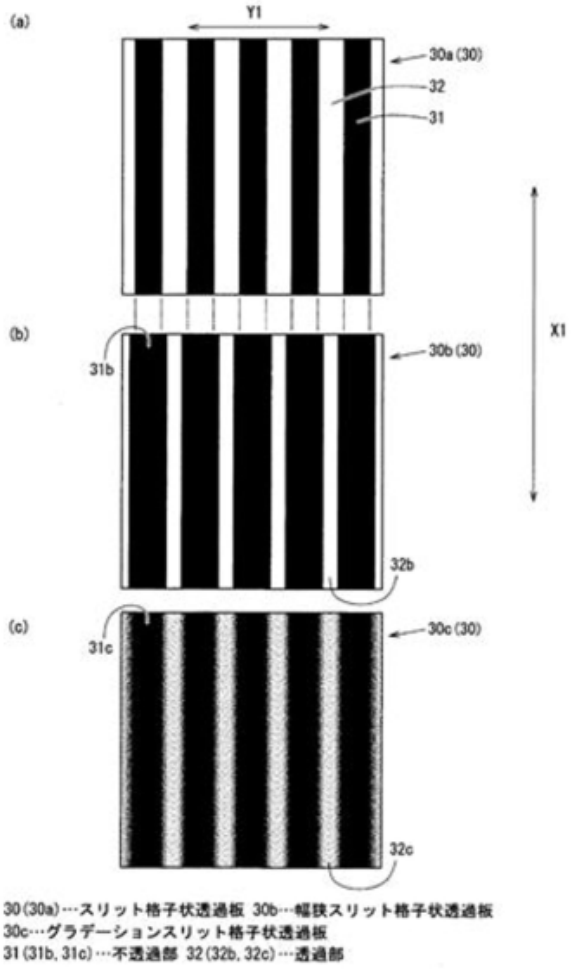


記憶部　Storage unit

制御・演算装置　Control/arithmetic operation device

光源　Light source
スリット　Slit
投影側光学経路Ｒｔ　Projection-side optical path Rt
計測対象物　Object to be measured
撮像部　Imaging unit
受光側光学経路Ｒｒ　Light receiving-side optical path Rr
スリット格子状透過板　Slit grid-like transmission plate
ハンディスキャナ　Handy scanner
照射光　Irradiation light
投影パターン光　Projection pattern light
歯牙　Teeth
"

"[FIG. 9]



スリット格子状透過板　Slit grid-like transmission plate

幅狭スリット格子状透過板　　Narrow-width slit grid-like transmission plate
グラデーションスリット格子状透過板　　Gradation slit grid-like transmission plate
不透過部　　Opaque section
透過部　Transparent section
"

No. 5 Comparison / Judgment
1 Regarding Invention 1
(1) Comparison
The Invention 1 and the Cited Invention are compared below.
A　The "projection lamp" in the Cited Invention corresponds to the "light source which emits predetermined light" in the Invention 1.
In the Cited Invention, "the projection grid 40 has grid lines extended upward and downward with the same pitch", and "an image of the projection grid 40 is formed on the body to be measured 2 by the projection optical system 26". The "projection grid 40" in the Cited Invention corresponds to the "pattern generation unit which converts the light incident from the light source to pattern light to be emitted" in the Invention 1. The "body to be measured 2" in the Cited Invention corresponds to the "object to be measured" in the Invention 1. The "projection optical system 26" in the Cited Invention corresponds to the "projection optical system which causes the pattern light emitted from the pattern generation unit to be imaged on the object to be measured" in the Invention 1.

B　In light of the examination in A, the "measurement head 12" of "the grid pattern projection shape measuring apparatus 10" in the Cited Invention "equipped with" "a projection optical system 26" which "projects" "an image of the projection grid 40" "on the body to be measured 2" corresponds to the "projection device for projecting predetermined pattern light to a predetermined object to be measured, in three-dimensional measurement on the object to be measured" in the Invention 1.

C　The "projection grid 40" in the Cited Invention "is formed by overlapping an element grid 41 arranged on the side of the projection lamp and an element grid 43 arranged on the body to be measured 2 so that grid lines (straight lines) thereof may be parallel to each other", and the "two element grids 41, 43" are "binary grids in which transmittance of projection light varies in a substantially binary manner between a light opaque region B which forms light opaque grid lines 45, 47, and a light transparent region

W which forms light transparent grid lines 61, 63". Thus, the "light transparent region W which forms light transparent grid lines 61, 63" and the "light opaque region B which forms light opaque grid lines 45, 47" in the Cited Invention correspond to the "light transmission parts which transmit light at a predetermined light transmittance" and the "light-blocking parts which block at least a part of light" in the Invention 1, respectively. The "two element grids 41, 43" in the Cited Invention correspond to "a plurality of grid members" in the Invention 1.

The arrangement direction of the "grid lines (straight lines) being parallel to each other" in the Cited Invention corresponds to the "first direction" in which "the light transmission parts which transmit light at a predetermined light transmittance and the light-blocking parts which block at least a part of light" are "alternately arranged" in the Invention 1. The matter described in the Cited Invention that the "element grid 41" and the "element grid 43" "are overlapped so that grid lines (straight lines) thereof may be parallel to each other" corresponds to the matter in the Invention 1,"the grid members being arranged opposite each other in a second direction orthogonal to the first direction".

D In the Cited Invention, "the projection grid 40 is configured so that the two element grids 41, 43 can be relatively slidable in a lateral direction perpendicular to the grid lines by means of a uniaxial moving stage 49, the uniaxial moving stage 49 is composed of an upper plate 51 which supports the one element grid 43 mounted on a support frame 48, a middle plate 53 which movably supports the upper plate 51 so as to be moved in the moving direction and fixedly supports the other element grid 41, and an adjustment screw 54, such that when an operator operates the adjustment screw 54, the upper plate 51 supporting the one element grid 43 can be moved in the moving direction, relative to the middle plate 53 supporting the other element grid 41, thereby enabling lateral slide adjustment". The "direction perpendicular to the grid lines" corresponds to the "first direction" in the Invention 1. Thus, the "uniaxial moving stage 49" in the Cited Invention for "relatively sliding the two element grids 41, 43 in a lateral direction perpendicular to the grid lines" corresponds to the "grid-moving means which can change relative positional relationship of the grid members with respect to the first direction" in the Invention 1.

According to the examinations in A to D, the Invention 1 and the Cited Invention have the following corresponding feature and different feature.

[Corresponding Feature]

"A projection device for projecting predetermined pattern light to a predetermined object to be measured, in three-dimensional measurement on the object to be measured, comprising:

a light source which emits predetermined light;

a pattern generation unit which converts the light incident from the light source to pattern light to be emitted; and

a projection optical system which causes the pattern light emitted from the pattern generation unit to be imaged on the object to be measured, wherein

the pattern generation unit includes

a plurality of grid members having grid patterns formed by alternately arranging light transmission parts which transmit light at a predetermined light transmittance and light-blocking parts which block at least a part of light, in a first direction, the grid members being arranged opposite each other in a second direction orthogonal to the first direction, and

grid-moving means which can change relative positional relationship of the grid members with respect to the first direction."

[Different Feature]

The "grid-moving means which can change relative positional relationship of the grid members with respect to the first direction" allows the Invention 1 to "change a period of pattern light to be projected on the object to be measured", while allowing the Cited Invention to "arbitrarily vary the line width ratio between the light opaque region B and the light transparent region W from a state (1:1) where the light opaque grid lines 45, 47 of the two element grids 41, 43 completely overlap each other to a state (e.g., 1.8: 1) where the light opaque grid lines 45, 47 partially overlap each other".

(2) Judgment

The above-mentioned Different Feature is examined.

A The "period of pattern light to be projected on the object to be measured" in the Invention 1 is considered to indicate a pitch of stripe pattern to be projected on the object to be measured, in light of the following descriptions in the present specification: "in the above configuration, the grid unit 20 can selectively generate two kinds of stripe patterns W different in period (stripe pitch) [0076]", and "In this embodiment, in accordance with irregularities of an inspection area on the printed board 1, the period (pitch) of the stripe pattern W to be projected from the projection device 14 is changed. Specifically, the two kinds of stripe patterns W, a first stripe pattern W1 for long period

and a second stripe pattern W2 for short period are selectively projected [0134]."

Accordingly, the configuration of the Invention 1 relating to the Different Feature, "change a period of pattern light to be projected on the object to be measured" means changing a pitch of stripe pattern to be projected on the object to be measured.

B Meanwhile, the Cited Invention is configured so that "the grid pitch P does not change due to the lateral slide" even though "the lateral slide adjustment allows the projection grid 40 to arbitrarily vary the line width ratio between the light opaque region B and the light transparent region W from a state (1:1) where the light opaque grid lines 45, 47 of the two element grids 41, 43 completely overlap each other to a state (e.g., 1.8: 1) where the light opaque grid lines 45, 47 partially overlap each other". Thus, even if the line width ratio is changed from 1:1 to 1.8:1, the distance between adjacent "light opaque regions B" does not change from the grid pitch P, as shown in [FIG. 3(c)].

Cited Document 1 does not include any description or indication about varying the line width ratio as the grid pitch is varied.

C No trigger to vary a grid pitch is found in the Cited Invention. Thus, it should be said that a person skilled in the art requires a leap of idea for configuring the Invention 1 relating to the Different Feature on the basis of the Cited Invention. Even if the Described matters in Cited Document 2 are applied to the Cited Invention which lacks the trigger, the configuration of the Invention 1 relating to the Different Feature cannot be obtained.

Thus, it cannot be said that the Invention 1 could be easily made even by a person skilled in the art.

2 Regarding Inventions 2 to 9

The Inventions 2 to 9 also include the same configuration as the Invention 1 relating to the above different feature. For the same reason as for the Invention 1, it cannot be said that the Inventions 2 to 9 could be easily made even by a person skilled in the art.

3 Summary

As examined in 1 and 2, none of the Inventions 1 to 9 is an invention described in Cited Document 1, an invention which could be easily made by a person skilled in the art on the basis of the invention described in Cited Document 1, or an invention which could

be easily made by a person skilled in the art on the basis of the inventions described in the Cited Document 1 and Cited Document 2.

No. 6 Closing

As above, none of the Inventions 1 to 6, 8 and 9 is an invention described in the Cited Document 1, or an invention which could be easily made by a person skilled in the art on the basis of the invention described in Cited Document 1. The Invention 7 is not an invention which could be easily made by a person skilled in the art on the basis of the inventions described in the Cited Documents 1 and 2.

Thus, the present application cannot be rejected due to the reasons of the examiner's decision.

In addition, beyond that, no reasons for refusal were found.

Therefore, the appeal decision shall be made as described in the conclusion.

February 10, 2021

Chief administrative judge: OKADA, Yoshimi
Administrative judge: HAMANO, Takashi
Administrative judge: KISHI, Satoshi