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(54) ADAPTER COVER, PHOTOGRAPHIC PRINT PRODUCING METHOD, AND LENS-FITTED PHOTOGRAPHIC FILM UNIT SYSTEM

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(57) **ABSTRACT**

Adapter covers are prepared for designating a sepia photofinishing, a monochrome photofinishing, a color photofinishing, and a frame-adding photofinishing. A user selects one of the adapter covers that designates the user's intended photofinishing, and attaches it to the lens-fitted photographic film unit. The lens-fitted photographic film unit is provided with three photography data optical paths for recording three bit marks as optical codes. The photography data optical paths are selectively covered by the adapter cover, and the optical code corresponding to the type of the adapter cover is recorded on a photographic film. A photographic print is produced by the photofinishing designated by the optical code recorded correspondingly to each picture frame.

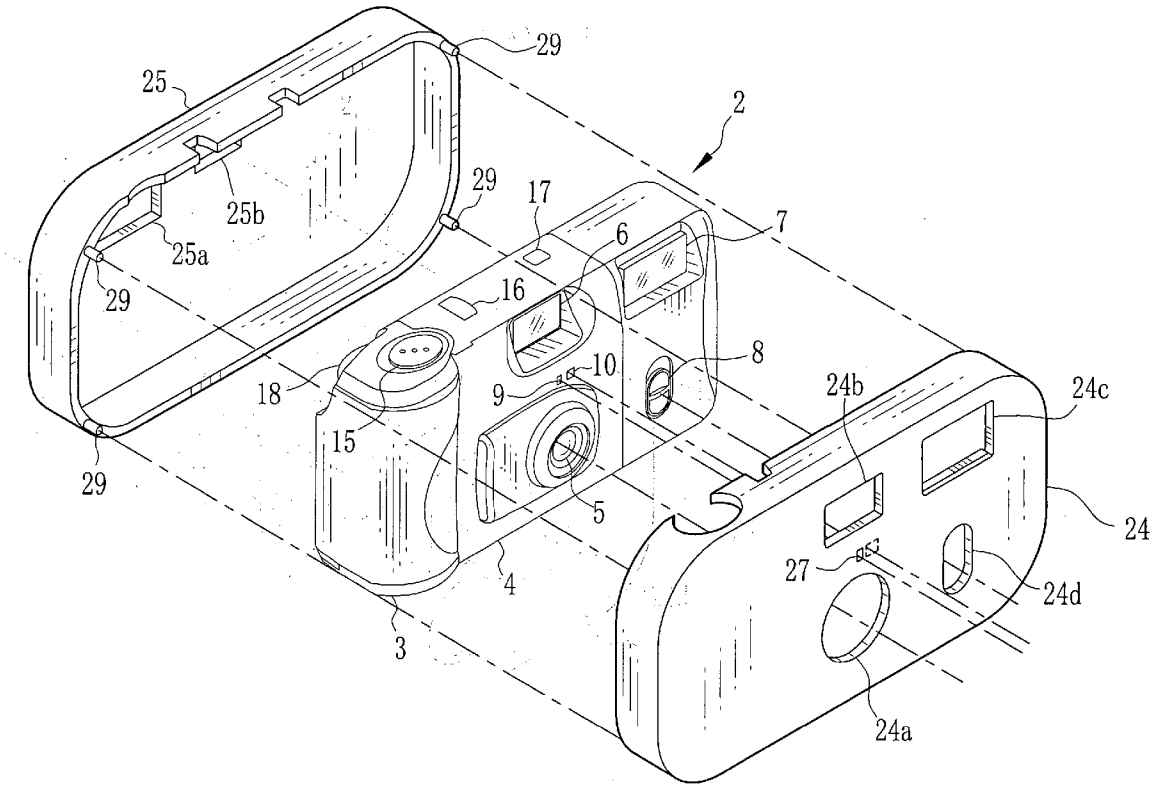
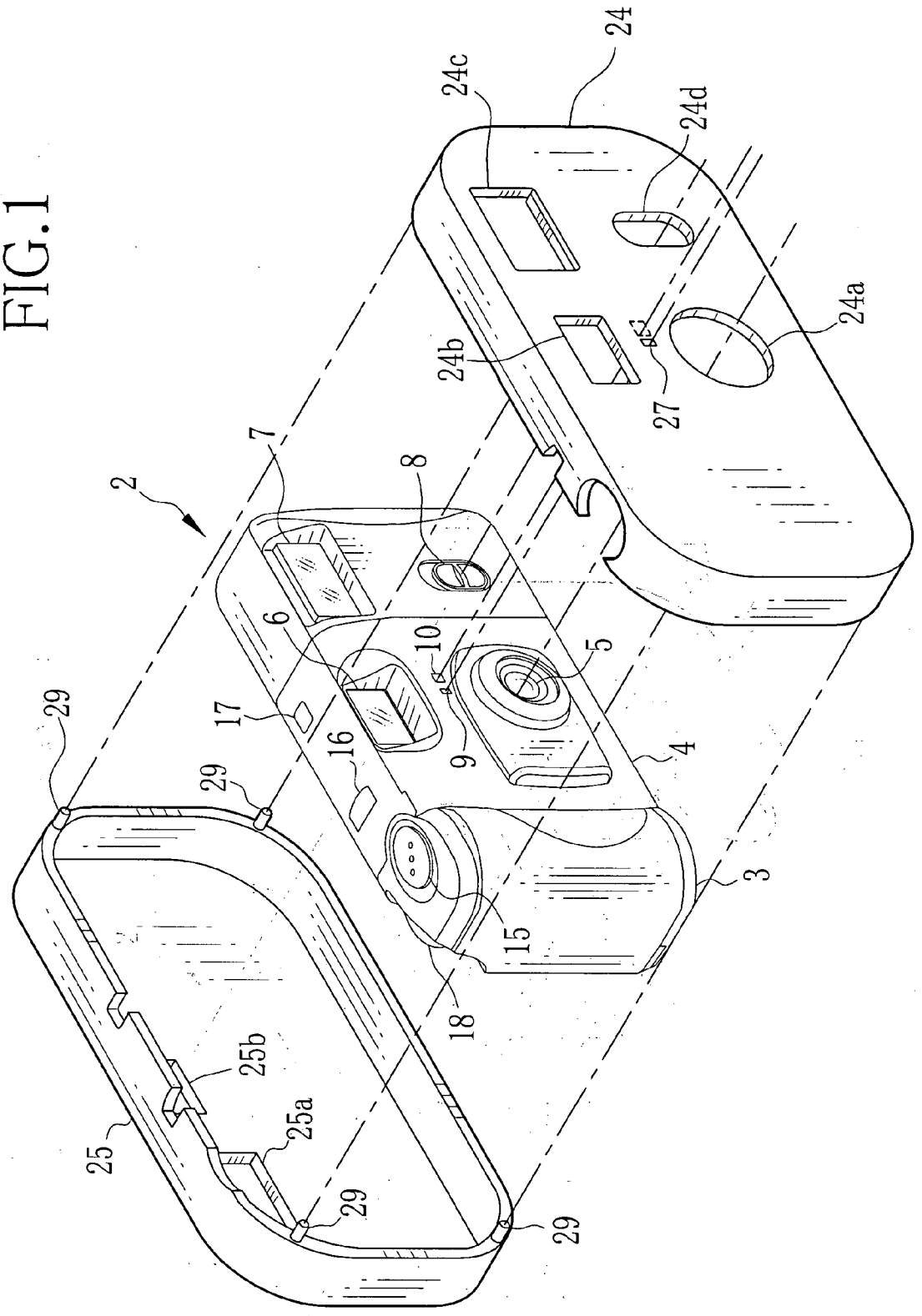


FIG.1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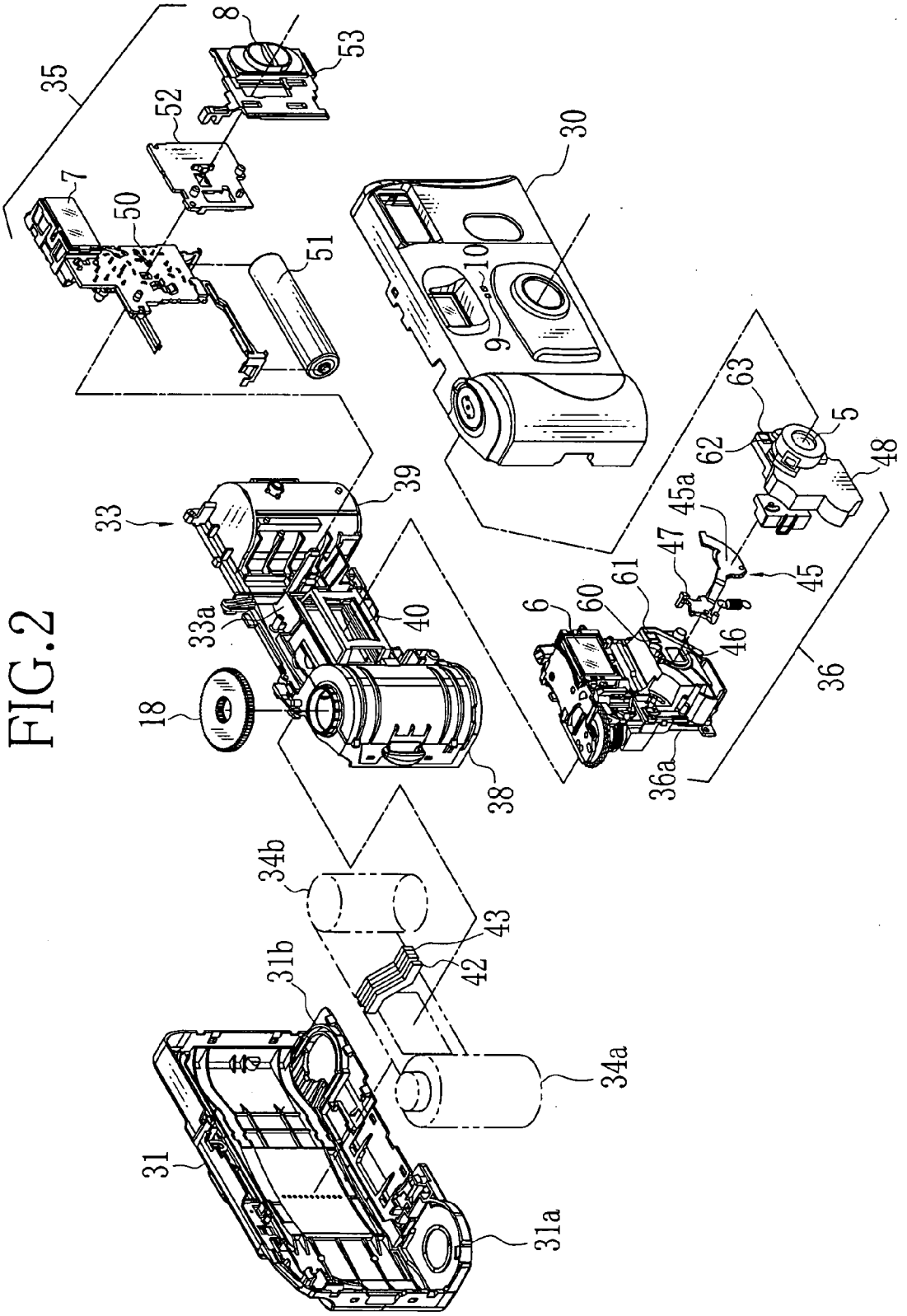
29

FIG.2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45a
47
45
61
6
60
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33a
40
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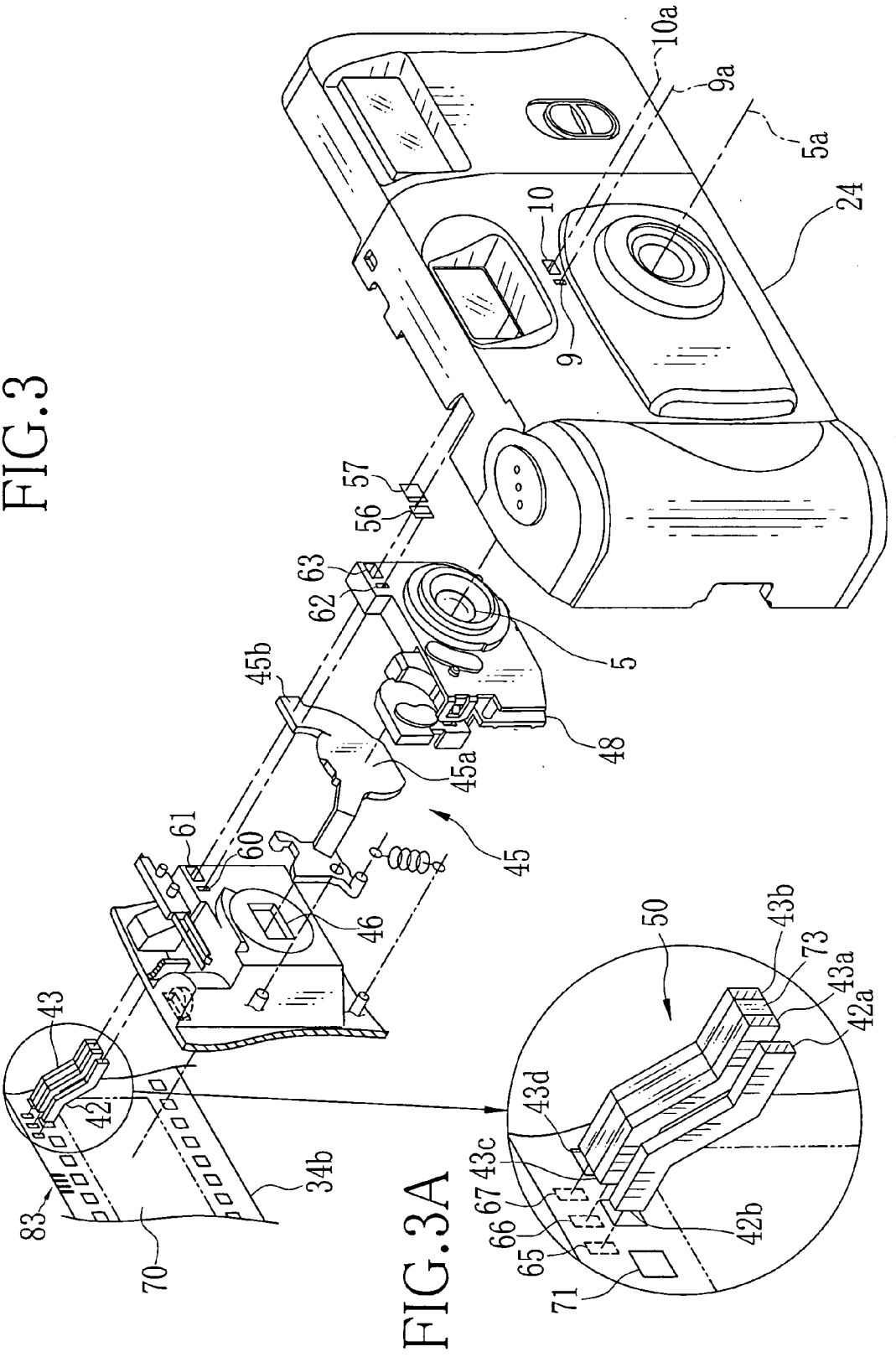
38
34b
43
42
31b
34a
31
31a

FIG.3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24
10
9
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56
63
62
5
45b
48
45a
61
60
45
46
43
42
34b
83
70
50
43b
73
43a
42a
43d
43c
67
66
65
71
42b

FIG.3A

FIG.4

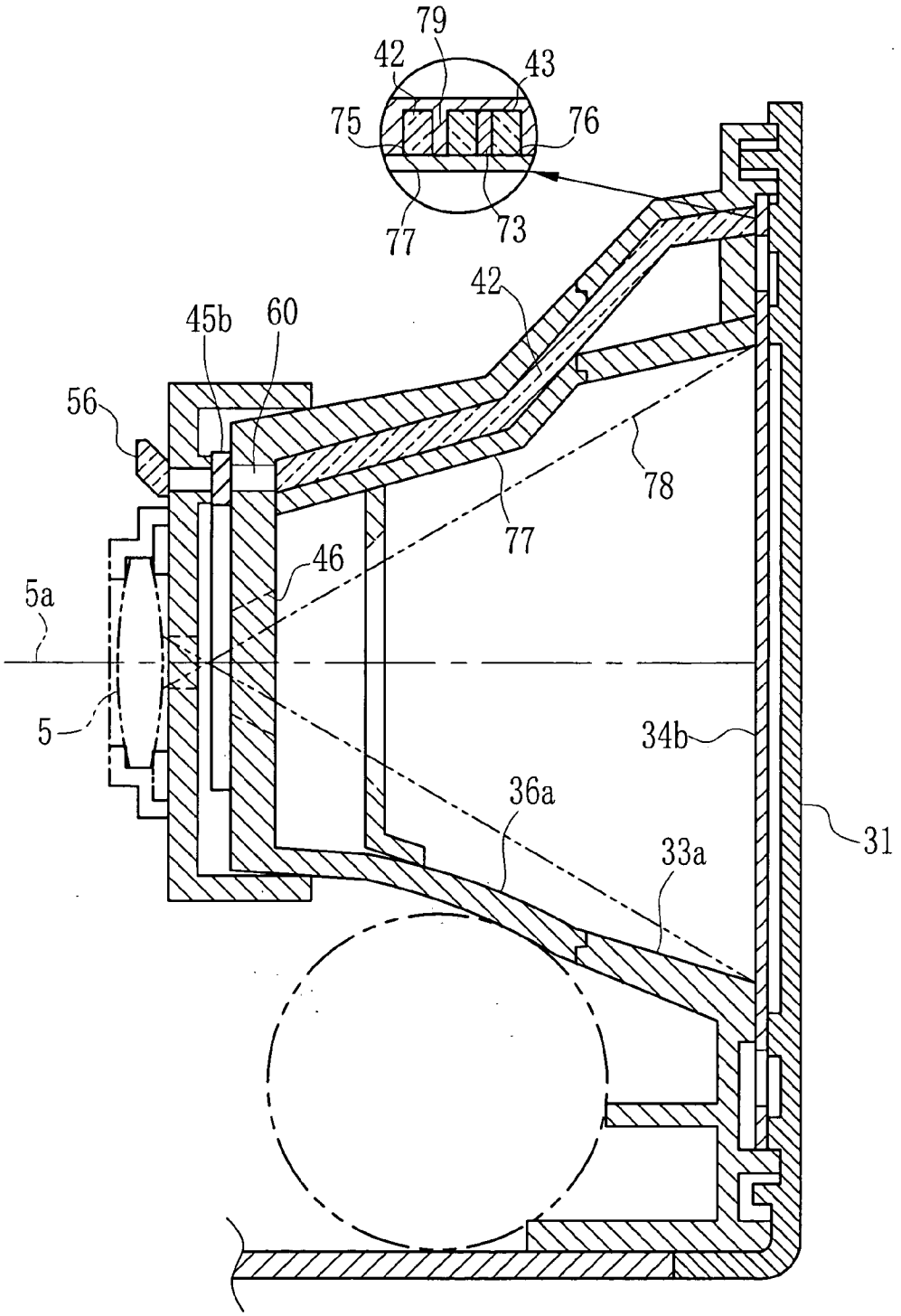


FIG.5

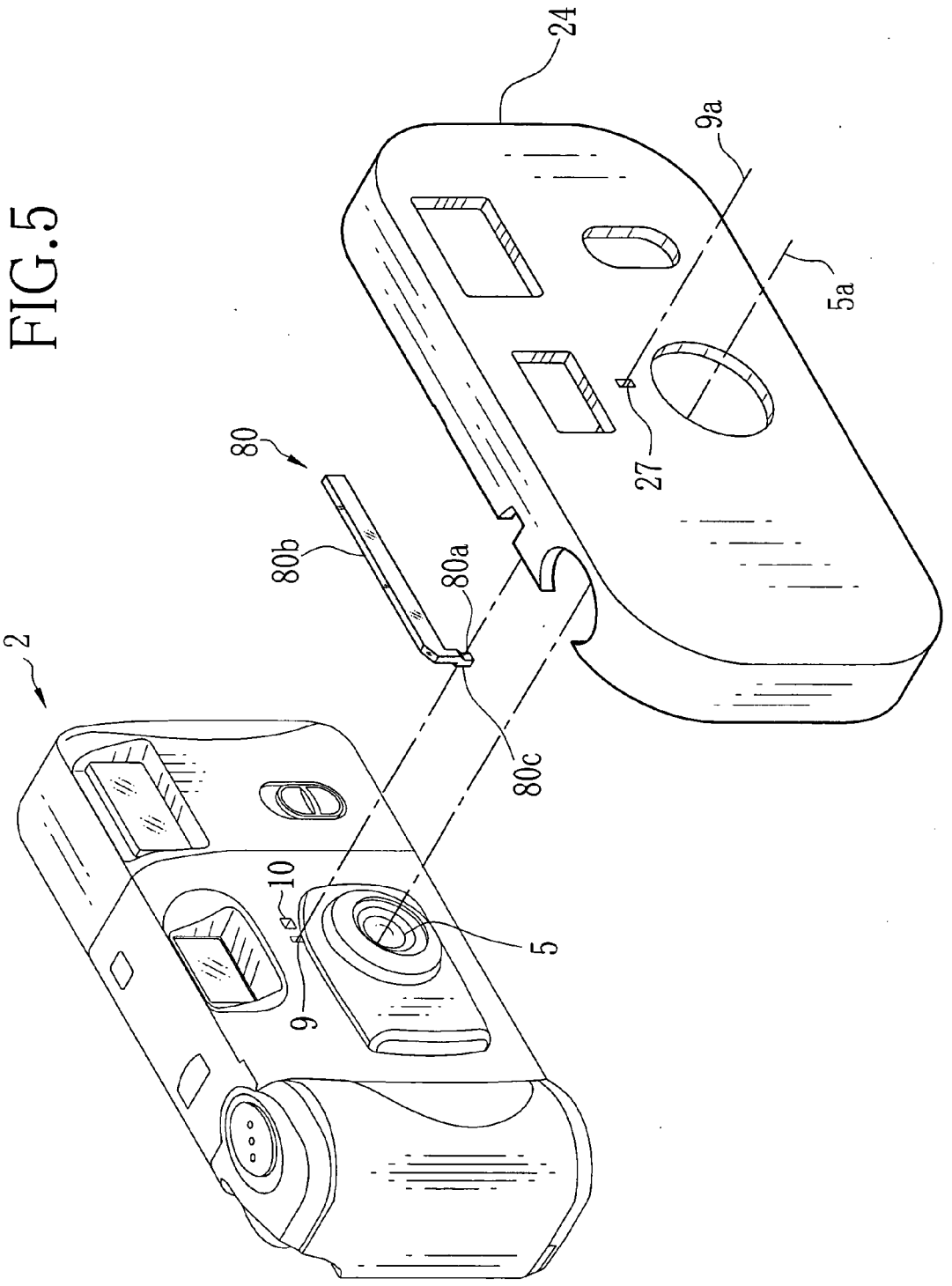
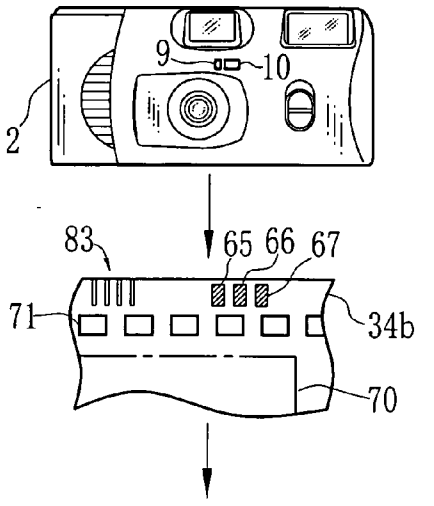
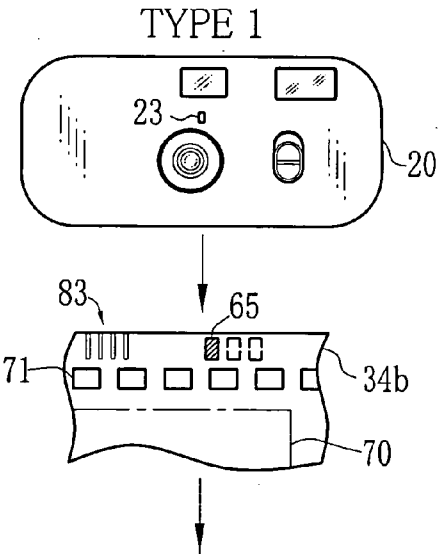


FIG.6A



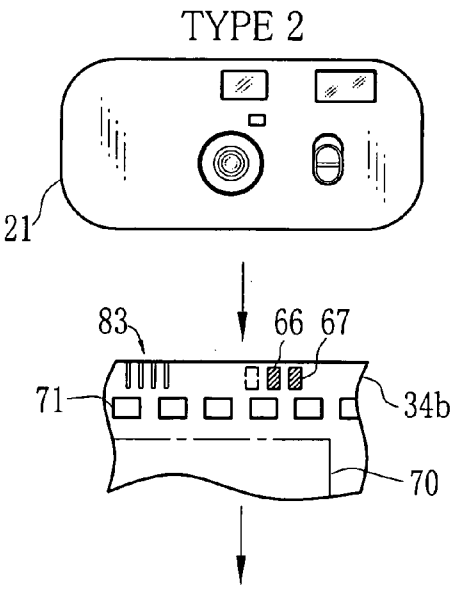
COLOR PHOTOGRAPHIC PRINT

FIG.6B



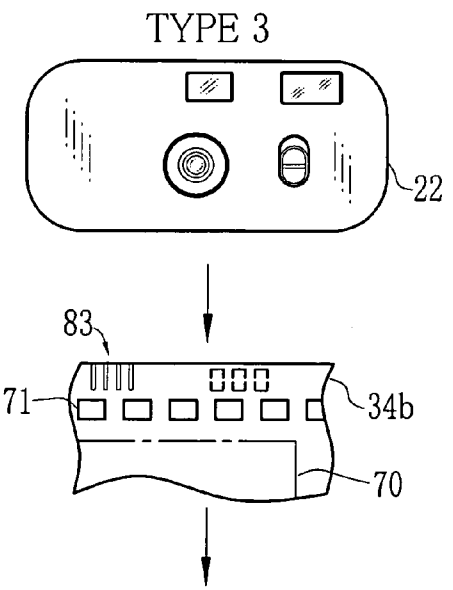
SEPIA PHOTOGRAPHIC PRINT

FIG.6C



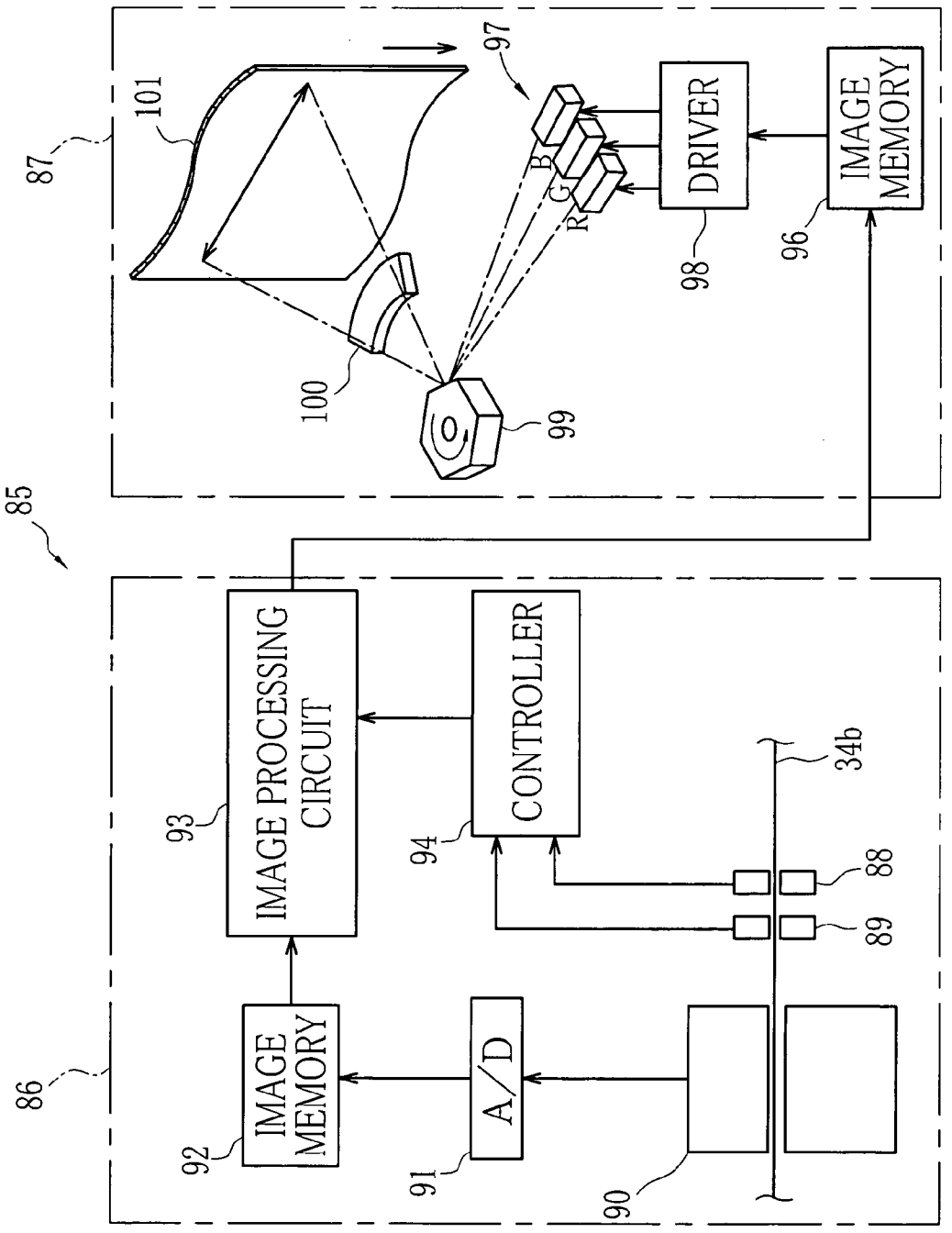
MONOCHROME PHOTOGRAPHIC PRINT

FIG.6D



FRAME-ADDED PHOTOGRAPHIC PRINT

FIG. 7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G
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DRIVER
IMAGE MEMORY
98
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100
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IMAGE PROCESSING CIRCUIT
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IMAGE MEMORY
A/D
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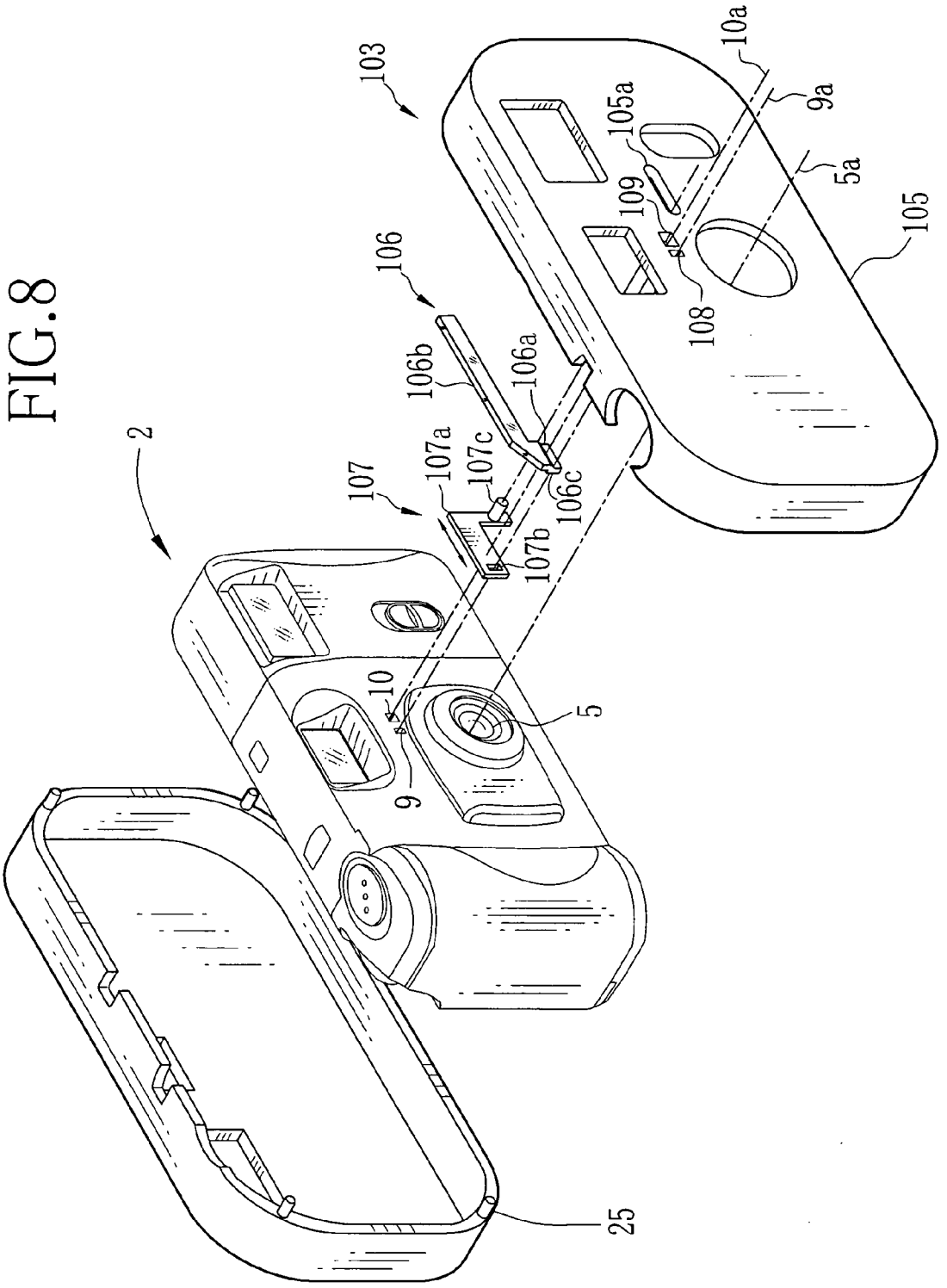
FIG.8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106c
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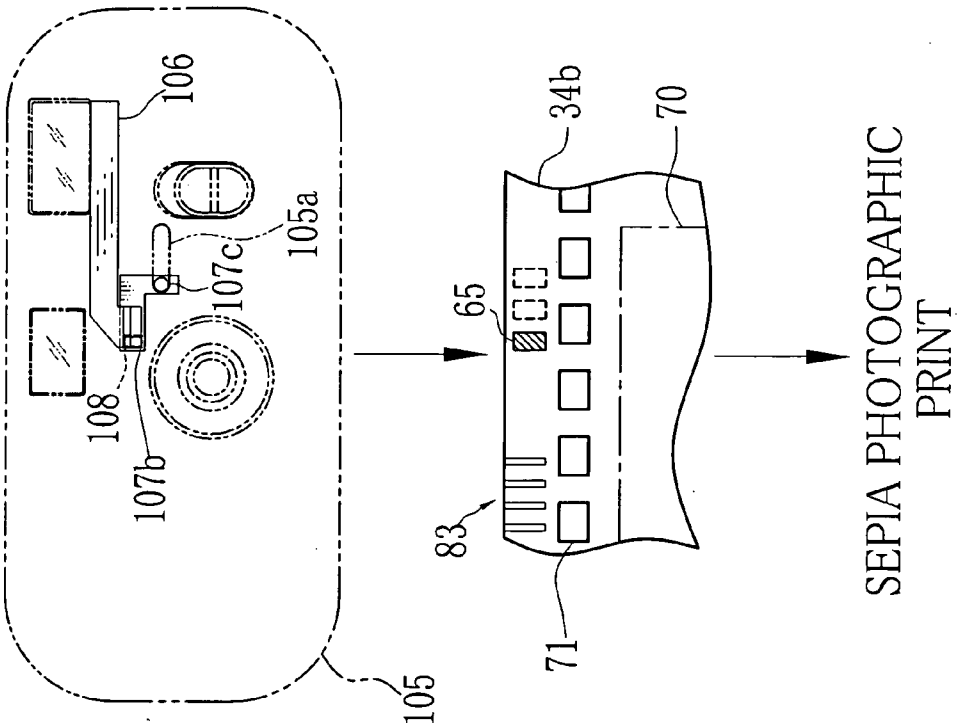
FIG.9A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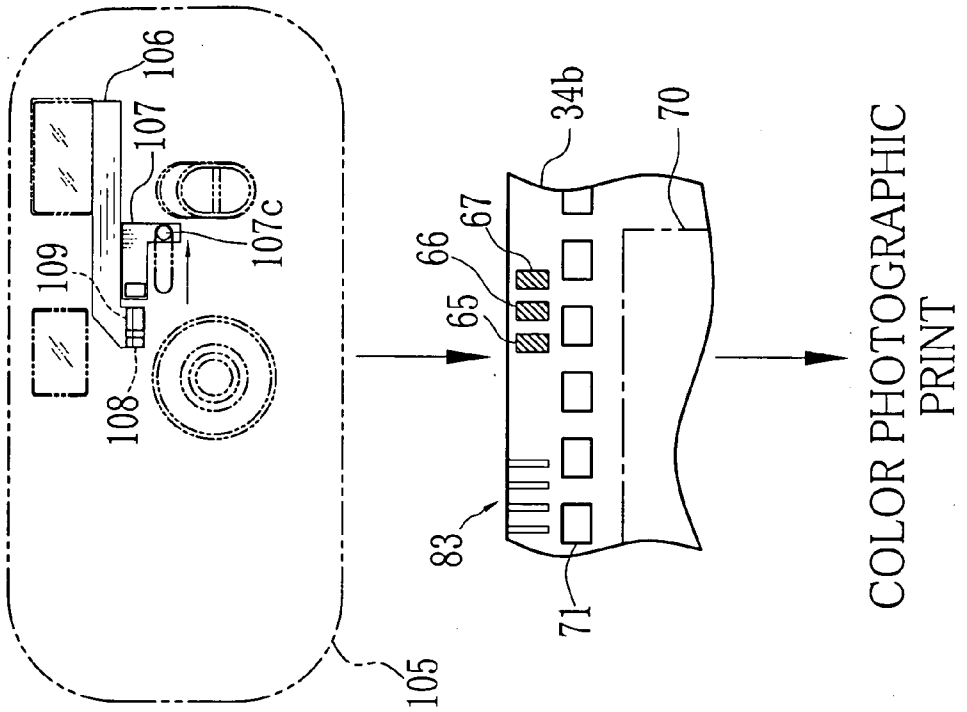
SEPIA PHOTOGRAPHIC PRINT

FIG.9B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COLOR PHOTOGRAPHIC PRINT

ADAPTER COVER, PHOTOGRAPHIC PRINT PRODUCING METHOD, AND LENS-FITTED PHOTOGRAPHIC FILM UNIT SYSTEM

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to an adapter cover for designating a photofinishing type, a method for producing photographic print of the designated photofinishing type, and a lens-fitted photographic film unit system.

[0003] 2. Background Arts

[0004] A lens-fitted photographic film unit having unit body with an integrated simple photographic mechanism and with a preloaded unexposed photographic film is popularly used as a simple camera. The lens-fitted photographic film unit having an integrated data imprinting device is also known. Japanese Patent Laid-Open Publication Number 08-211478, for example, discloses a photographic data imprinting device which takes in external light via a light entering window on a front face of the unit body in response to shutter release and guides it to the photographic film with a light guide formed of transparent resin, so as to imprint a mark on the outside of a picture frame. In printing process, the imprinted mark is read out and a photographic print is printed in the print size designated by the imprinted mark. Furthermore, the lens-fitted photographic film unit capable of designating photofinishing type is known. A photograph taken by this lens-fitted photographic film unit is printed to be, for example, a sepia or a monochrome photographic print.

[0005] For all images on a single roll of photographic film taken by the lens-fitted photographic film unit that designates a particular photofinishing type, only the designated photofinishing is performed. A user thus needs to purchase a particular photographic film unit that designates the user's intended photofinishing type. This is inconvenient for the user and it is desired that the user may easily designate a plurality of photofinishing types using a single lens-fitted photographic film unit.

SUMMARY OF THE INVENTION

[0006] A main object of the present invention is to provide an adapter cover, a lens-fitted photographic film unit, and a method for producing a photographic print that enable a user to have a photographic print photofinished by photofinishing of the user's intended type without using an exclusive camera for a particular photofinishing.

[0007] Another object of the present invention is to provide the adapter cover which enables the user to change an optical code for designating the photofinishing type within a single roll of the photographic film.

[0008] Still another object of the present invention is to provide the adapter cover needs only be attached to the camera to imprint the user's intended optical code.

[0009] In order to achieve the above objects and other objects, the adapter cover of the present invention is attached to the camera for blocking at least one optical data path. The camera is provided with at least one lighting window on the front face of the camera body, and at least one optical data path for imprinting a bit mark on the outside of an exposure area on the photographic film by guiding the external light from the lighting window to the photographic film. A combination of the bit marks expresses the optical code for designating the photofinishing type.

[0010] In a preferred embodiment of the present invention, the adapter cover is provided with a front adapter cover and a rear adapter cover and accommodates a camera such as the lens-fitted photographic film unit. The photofinishing types are the sepia photofinishing, the monochrome photofinishing, the color photofinishing, and the frame-adding photofinishing.

[0011] The camera is provided with a first and a second lighting windows, and a first, a second and a third optical data paths. The external light from the first lighting window enters the first and the second optical data paths, while the external light from the second lighting window enters the third optical data path. Up to three bit marks are thus imprinted on the photographic film.

[0012] A first, a second and a third adapter covers are prepared and selectively used in accordance with the desired photofinishing type. Each adapter cover is formed of opaque plastic. The first adapter cover has a cover opening which faces the first lighting window for imprinting a first bit mark on the photographic film. The second adapter cover has the cover opening which faces the second lighting window for imprinting a second and a third bit marks on the photographic film. The third adapter cover blocks both the first and the second lighting windows.

[0013] In each of the first and the second adapter covers, a light guide is disposed for guiding the external light and flash light to the lighting windows. In the first adapter cover, a first end of the light guide is located between the lighting windows and the case opening, while a second end of the light guide between a flash light emitting unit and a flash opening. In the second adapter cover, one end of the light guide is located between the lighting windows and the plurality of case openings. An opening/closing member is slidably disposed in front of or behind the light guide for selectively opening/closing the lighting windows to be operated from the outside of the adapter cover.

[0014] The lens-fitted photographic film unit system of the present invention is provided with the lens-fitted photographic film unit containing a preloaded photographic film, and at least one adapter cover to be removably attached to the lens-fitted photographic film unit. The lens-fitted photographic film unit is provided with a unit body having a photographic mechanism, at least one lighting window formed on the front face of the unit body, and at least one optical data path for guiding the external light from the lighting window to the photographic film.

[0015] The method for producing the photographic print of the present invention is to read out both the image recorded on the photographic film and the optical code expressed by at least one bit mark imprinted at the time of photographing, to process an image in accordance with the optical code, and then to print the processed image on a recording media.

[0016] According to the present invention, it is possible to designate by simply selecting and attaching one of the adapter covers. It is also possible to imprint various optical codes designating various photofinishing types on a single

roll of the photographic film by changing the adapter cover. Furthermore, it is possible to change the optical code by shifting the opening/closing member provided to the adapter cover, in the preferred embodiment of the present invention.

[0017] Accordingly, it is possible to produce the photographic print of the intended photofinishing designated at the time of photographing, by reading out the image and the optical code recorded on photographing and processing the image in accordance with the optical code. It is also possible to process the image in a more complicated manner by combining the optical data and film data prerecorded on the photographic film.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] One with ordinary skill in the art would easily understand the above-described objects and advantages of the present invention when the following detailed description is read with reference to the drawings attached hereto.

[0019] **FIG. 1** is a perspective view illustrating an adapter cover and a lens-fitted photographic film unit;

[0020] **FIG. 2** is an exploded perspective view illustrating a constitution of the lens-fitted photographic film unit;

[0021] **FIG. 3** is an exploded perspective view illustrating a constitution of an optical data imprinting device of the lens-fitted photographic film unit, and **FIG. 3A** is a perspective view of a main portion;

[0022] **FIG. 4** is a cross-sectional view of a main part of an dark box;

[0023] **FIG. 5** is an explanatory view illustrating a fifth light guide provided to a front adapter cover;

[0024] **FIGS. 6A** to **6D** are explanatory views illustrating relations between bit marks imprinted by each adapter cover and photofinished photographic prints;

[0025] **FIG. 7** is a schematic view illustrating a constitution of a digital printer;

[0026] **FIG. 8** is an exploded perspective view illustrating an embodiment in which the bit mark can be changed; and

[0027] **FIGS. 9A and 9B** are explanatory views illustrating the relations between bit marks imprinted by the adapter cover shown in **FIG. 8** and the photofinished photographic prints.

PREFERRED EMBODIMENTS OF THE INVENTION

[0028] As shown in **FIG. 1**, a lens-fitted photographic film unit **2** comprises a unit body (camera body) **3** incorporating various photographic mechanisms, a film cartridge preloaded on manufacture of the unit body **3** in the factory, and a label **4** adhered around the periphery of the unit body **3**. The label **4** has openings for exposing various parts of the unit body **3**.

[0029] The front face of the unit body **3** is provided with a taking lens **5**, an objective lens **6**, a flash light emitting unit **7**, a flash charging switch **8**, and a first and a second lighting windows **9** and **10** for imprinting optical data. The top face of the unit body **3** is provided with a shutter button **15**, a film counter window **16**, and an opening **17**. The rear face of the unit body **3** exposes a part of a winding wheel for taking up the exposed photographic film.

[0030] The lens-fitted photographic film unit **2** performs daylight photographing when the flash charging switch **8** is set in an OFF position as shown in **FIG. 1**, and flash photographing when the flash charging switch **8** is set in an ON position, upward from the OFF position. Although it is not shown in **FIG. 1**, a charge completion indicator protrudes from the opening **17** in conjunction with the shift of the flash charging switch **8** to the ON position. The charge completion indicator is a light guide formed of a transparent plastic, for guiding illuminating or blinking light of a flash charge completion lamp and discharging them at an end face when the flash light emitting unit **7** completes charging.

[0031] In daylight photographing, the external light is guided through the first and the second lighting windows **9** and **10** into the unit body **3** then optically prints an approximately square-shaped bit mark on the outside of a picture frame to correspond to the position of the picture frame on the photographic film. In flash photographing, the flash light emitted toward a subject is reflected on the subject and enters the unit body **3** via the first and the second lighting windows **9** and **10** to optically imprint the bit mark in the same way as the daylight photographing.

[0032] By imprinting various bit marks by simply changing the adapter covers, it is possible to obtain photographs to be processed not only with color image processing but also other image processing. Such image processing are the image processing for sepia toning (hereinafter referred to as sepia photofinishing), for monochrome toning (hereinafter referred to as monochrome photofinishing), and for merging a predetermined pattern as the frame with the image (hereinafter referred to as frame-adding photofinishing). Note that the image processing is not limited to them.

[0033] As shown in **FIG. 6**, three kinds of adapter covers are prepared as an adapter cover **20** (Type 1) for blocking the second lighting window **10** on the front face of the lens-fitted photographic film unit **2**, an adapter cover **21** (Type 2) for blocking the first lighting window **9**, and an adapter cover **22** (Type 3) for blocking both lighting windows **9** and **10**. At least a part of the optical data path is blocked when one of the adapter covers **20**, **21** and **22** is selectively attached to the lens-fitted photographic film unit **2**. Note that the present embodiment is exemplified using the adapter cover **20**, which blocks the second lighting window **10**.

[0034] As shown in **FIG. 1**, the adapter cover **20** comprises a front adapter cover **24** and a rear adapter cover **25**, for respectively covering the front side and the rear side of the lens-fitted photographic film unit **2**. Both of the front and the rear adapter covers **24** and **25** are formed of opaque plastics. The front adapter cover **24** is provided with an opening (cover opening) **27** for exposing the first lighting window **9** of the lens-fitted photographic film unit **2**, as well as openings **24***a*, **24***b*, **24***c*, and **24***d* for exposing the taking lens **5**, the objective lens **6**, the flash light emitting unit **7**, and the flash charging switch **8** respectively. The rear adapter cover **25** is provided with opening **25***a* for exposing the winding wheel **18**, and a rear viewfinder window **25***b*. The front and the rear adapter covers **24** and **25** are attached to hold the lens-fitted photographic film unit **2** from the front and rear sides, fitting a protrusion **29** of the adapter rear cover **25** into a fitting hole (not shown) of the front cover **24**.

Thereby, the taking lens **5**, the objective lens **6**, and the first lighting window **9** are exposed through the openings on the front and the rear adapter covers **24** and **25**. The shutter button **15**, the film counter window **16**, and the light guide are exposed through the openings on the upper face of the adapter cover **20**. The second lighting window **10** is covered by the front adapter cover **24**.

[**0035**] As shown in **FIG. 2**, the lens-fitted photographic film unit **2** comprises a front cover **30** and a rear cover **31**. Inside of the covers **30** and **31**, a body base **33**, a cartridge **34***a*, a photographic film **34***b*, a flash unit **35** are mounted.

[**0036**] A cartridge chamber **38** for accommodating a cartridge **34***a* is disposed at one end of the base body **33**, and a film roll chamber **39** for accommodating a roll of unexposed photographic film **34***b* is disposed at the other end across the exposure opening **40** from the cartridge chamber **38**. The winding wheel **18** is rotatably provided on top of the cartridge chamber **38**. Having a shaft engaging with the spool of the cartridge **34***a*, the winding wheel **18** takes up the exposed photographic film **34***b* into the cartridge **34***a* as rotated in a film winding direction.

[**0037**] The exposure unit **36** is provided in front of the exposure opening **40**. A portion **33***a* of the body base **33** and a portion **36***a* of the exposure unit **36** are engaged with each other to form a dark box, which guides photographic light penetrating the taking lens **5** to the exposure opening **40**. A first and a second light guides **42** and **43** are attached within the dark box.

[**0038**] The rear face of the body base **33** is open, and is light-shielded when the rear cover **31** is attached thereto after the cartridge **34***a* and the photographic film **34***b* are loaded. The bottoms of the cartridge chamber **38** and the film roll chamber **39** are open, too. The rear cover **31** is provided with pull-tab type lids **31***a* and **31***b*, which have thin portions and open and close freely. The lid **31***a* covers the bottom of the film roll chamber **39**, while the lid **31***b* covers the bottom of the cartridge chamber **38** and is opened when the exposed cartridge **34***a* is removed from the unit body **3**.

[**0039**] The exposure unit **36** is a unit having the taking lens **5**, a shutter mechanism, a film winding stop mechanism, a shutter charge mechanism, a film counting mechanism, and a finder optical system integrally mounted therein. The finder optical system is a reverse-Galilean finder including the concave objective lens **6** and a convex eyepiece.

[**0040**] The shutter mechanism is a kick type that kicks an end **47** of a shutter blade **45** in response to a shutter release, such that the shutter blade **45** swings back and force once in front of a shutter opening **46** while cutting across a photographing optical axis **5***a*. The shutter opening **46** is provided on the photographing optical axis **5***a* at the front part of the dark box of the exposure unit **36**. A photography optical path opening/closing portion **45***a* is provided on the shutter blade **45** in the opposite side of the end **47** and is covered with a shutter cover **48**. The shutter cover **48** has a fixed aperture formed thereon, and the taking lens **5** is attached at the front side of the fixed aperture.

[**0041**] The flash unit **35**, which comprises a flash board **50**, a power supply battery **51**, a guide plate **52**, a switch plate **53** and so on, is removably attached between the body base **33** and the front cover **30**. The flash board **50** has a flash circuit, a main capacitor, a synchronizing contact, and a switch plate **53** integrally mounted therein. The flash charging switch **8** is formed on the switch plate **53** to open/close the flash circuit as sliding with support of the guide plate **52**. When the flash charging switch **8** is turned on, the flash unit **35** charges a main capacitor using the power from the power supply battery **51**, and applies a triggering signal to a discharge tube in response to the synchro switch. The charge accumulated in the main capacitor is thereby discharged to the discharge tube and the flash light emitting unit **7** emits the flash light toward the subject.

[**0042**] As shown in **FIG. 3**, the first and the second lighting windows **9** and **10** of different sizes are provided on the first and the second photography data optical paths **9***a* and **10***a* respectively. A third and a fourth light guides **56** and **57** formed of transparent plastics are provided behind the first and the second lighting windows **9** and **10** on the front cover **30**. The external light from the first lighting window **9** is guided to the first light guide **42** via the third light guide **56**, while the external light from the second lighting window **10** is guided to the second light guide **43** via the fourth light guide **57**.

[**0043**] The shutter blade **45** in the shutter mechanism has an optical data path opening/closing portion **45***b* protruding slantwise upward from the photography optical path opening/closing portion **45***a*. The optical data path opening/closing portion **45***b* opens or closes a first and a second openings **60** and **61**, which are for data imprinting, at a time. The first and the second openings **60** and **61** are respectively provided on the first and the second photography data optical paths **9***a* and **10***a*, which guide the external light from the first and the second lighting windows **9** and **10** to incident surfaces **42***a*, **43***a* and **43***b* of the first and the second light guides **42** and **43**. Openings **62** and **63** are provided on the shutter cover **48** on the first and the second photography data optical paths **9***a* and **0***a* respectively.

[**0044**] The first light guide **42** is provided with the incident surface **42***a* for taking in the external light from the first lighting window **9**, and an exit surface **42***b* for discharging the external light so as to imprint the bit mark **65** on the photo film **34***b*. Similarly, the second light guide **43** is provided with the incident surfaces **43***a* and **43***b* for taking in the external light from the second lighting window **10**, and exit surfaces **43***c* and **43***d* for discharging the external light so as to imprint the bit marks **66** and **67** on the photo film **34***b*. The exit surfaces **42***b*, **43***c* and **43***d* are located close to the photo film **34***b* to imprint the bit marks **65**, **66** and **67** at equal spaces in an edge area outside of perforations **71**. A light-shielding partition **73** is provided at the center of the second light guide **43** along with the lengthwise of it, such that the exit surfaces **43***c* and **43***d* discharge the lights separately. Note that a reference numeral **70** indicates an exposure area.

[**0045**] As shown in **FIG. 4**, the first light guide **42** forms the first photography data optical path **9***a* that guides the external light entering the dark boxes **33***a* and **36***a* from the first opening **60** to a first imprint opening **75**. The first photography data optical path **9***a* and a photography optical path **78** are separated from each other by a light-blocking wall **77** at the upper area within the dark boxes **33***a* and **36***a*. Although it is not shown in **FIG. 4**, the second light guide **43** forms the second photography data optical path **10***a* that guides the external light entering the dark boxes from the

second opening **61** to a second imprinter opening **76**, and separated into two paths by the light-blocking wall **77** within the dark boxes. The light-blocking wall **77** prevents the lights in the first and the second photography data optical paths **9***a* and **10***a* from entering (leaking into) the optical path **78**. The first and the second light guides **42** and **43** are separated from each other by a separation wall **79** that prevents the entrance (leaking) of the lights between the first and the second photography data optical paths **9***a* and **10***a*.

[**0046**] As shown in **FIG. 5**, a fifth light guide **80** is provided in the rear side of the opening **27** on the front adapter cover **24** for exposing the first lighting window **9**, in order to guide either the ambient light or the flash light from the flash light emitting unit **7** to the first lighting window **9**. The fifth light guide **80** is formed of a transparent plastic and provided with an ambient light taking portion **80***a* disposed covering the cover opening **27** from the rear side of the front adapter cover **24**, a flash light taking portion **80***b* disposed below and in front of the flash light emitting unit **7**, and an light emitting end **80***c* for discharging the light from either the ambient light taking portion **80***a* or the flash light taking portion **80***b* to the first lighting window **9**.

[**0047**] The light emitting end **80***c* covers the first lighting window **9** when the front adapter cover **24** is attached to the lens-fitted photographic film unit **2**. Since the second lighting window **10** is covered with the rear side of the front adapter cover **24** when the front adapter cover **24** is attached to the lens-fitted photographic film unit **2**, neither the ambient light nor the flash light from the fifth light guide **80** enters the second lighting window **10**.

[**0048**] Although the present embodiment is exemplified using the adapter cover **20** for guiding the ambient light or the flash light to the first lighting window **9**, the constitution of the adapter cover **20** is in common with that of the adapter cover **21** of the Type 2 for guiding the ambient light or the flash light to the second lighting window **10** while covering the first lighting window **9**. In this case, the ambient light taking portion **80***a* of the fifth light guide **80** covers the opening for exposing the second lighting window **10** on the front adapter cover of the adapter cover **21**. In addition, the light emitting end **80***c* covers the second lighting window **10** when the adapter cover **21** is attached to the lens-fitted photographic film unit **2**. The light emitting end **80***c* discharges the light from the ambient light taking portion **80***a* or the flash light taking portion **80***b* to the second external light emitting window **10**.

[**0049**] Although the fifth light guide **80** of the adapter covers **20** and **21** stated above is provided with both the ambient light taking portion **80***a* and the flash light taking portion **80***b*, the fifth light guide **80** may be provided with either one of them. The adapter cover **22** for covering both the first and the second lighting windows **9** and **10** is not provided with the fifth light guide **80**.

[**0050**] As shown in **FIG. 6A**, the optical codes in the form of three bit marks **65**, **66** and **67** are imprinted on the outside of the perforations **71** on the photographic film **34***b* photographed by the lens-fitted photographic film unit **2** without the adapter cover **20**. As shown in **FIG. 6B**, the optical code in the form of a single bit mark **65** is imprinted on the outside of the perforations **71** on the photographic film **34***b* photographed by the lens-fitted photographic film unit **2** with the adapter cover **20** of Type 1 attached thereto. As shown in **FIG. 6C**, the optical codes in the form of two bit marks **66** and **67** are imprinted on the outside of the perforations **71** on the photographic film **34***b* photographed by the lens-fitted photographic film unit **2** with the adapter cover **21** of the Type 2 attached thereto. As shown in **FIG. 6D**, no bit mark is imprinted on the outside of the perforations **71** on the photographic film **34***b* photographed by the lens-fitted photographic film unit **2** with the adapter cover **22** of Type 3 attached thereto.

[**0051**] A film data **83** is exposed preliminarily in a position outside the perforations **71**, avoiding overlapping the dot marks **65** to **67** on the photographic film **34***b*, as shown in **FIG. 3**. The film data **83** are barcodes carrying such identification data of the photo film **34***b* as film sensitivity, a film type, a lot number, and a maker, and are recorded as latent information in the manufacture of the photographic film **34***b* to be visualized after development of the photo film **34***b*. The images on the photo film **34***b* are printed based on the film data **83** because the photo film **34***b* may slightly vary in coloring density at different manufacturers or lot numbers even with the same film sensitivity.

[**0052**] As shown in **FIG. 7**, a digital printer **85** comprises an input section **86** and an output section **87**. The input section **86** comprises a first and a second photo sensors **88** and **89** for reading the film data **83** and the bit marks **65**, **66** and **67** on the developed photo film, a scanner **90** for scanning the color image on each frame of the photo film **34***b*, an A/D converter **91**, an image memory **92**, an image processing circuit **93**, and a controller for controlling all of them.

[**0053**] The developed photo film **34***b* is transported by a transport mechanism (not shown) to the scanner **90** via the photo sensors **88** and **89**. In this transportation, the film data **83** on the photo film **34***b* is read out by the first photo sensor **88** and the dot marks **65** to **67** of each frame are read out by the second photo sensor **89**. The read out film data **83** and the dot marks **65** to **67** are sent to the controller **94**, which controls the image processing circuit **93** based on the film data **83** and the dot marks **65**, **66** and **67**.

[**0054**] The scanner **90** comprises a film carrier, a lamp, a mixing box for illuminating the picture frame set on the film carrier by diffusing the light from the lamp, a lens for focusing the color image in the picture frame reading the photographed frame onto an image sensor (CCD). In every feeding of the frame of the photo film **34***b*, the scanner **90** performs three color separation and sends obtained photoelectric signals to the A/D converter **91**.

[**0055**] By digitally converting the photoelectric signals, the A/D converter **91** converts the color image in the photographed frame into three-color image data. The three-color image data is written in an image memory **92**, and then the image process circuit **93** reads out the three-color image data and performs image processing based on the film data **83** and the dot marks **65**, **66** and **67** under control of the controller **94**.

[**0056**] For example, when three bit marks **65** to **67** are imprinted on the photographic film **34***b* as shown in **FIG. 6A**, a color photofinishing, which is a regular one, is performed on the corresponding picture frame. When a single bit mark **65** is imprinted as shown in **FIG. 6B**, the sepia photofinishing is performed on the corresponding

picture frame. When two bit marks **66** and **67** are imprinted as shown in **FIG. 6***c*, the monochrome photofinishing is performed on the corresponding picture frame. When no bit mark is imprinted as shown in **FIG. 6D**, the frame-adding photofinishing is performed on the corresponding picture frame. The image data is outputted to the image memory **96** of the output section **87** after photofinishing.

[**0057**] The output section **87** comprises the image memory **96**, a laser unit **97** for radiating red, blue and green laser beams, a driver **98** for controlling output of the laser unit **97** based on the processed image data in the image memory **96**, a polygonal mirror **99**, an Fθ lens **100**, a continuous color photographic paper **101**, and a conveyer mechanism (not shown) for conveying the color photographic paper **101**.

[**0058**] While the continuous color photographic paper **101** is transported in its lengthwise direction, line exposure of the images in each picture frame is performed on the color photographic paper **101** by laser beam scanning of the polygonal mirror **99** rotating rapidly. The exposed color photographic paper **101** is cut by each frame after developed.

[**0059**] The following is an explanation about the operation of the above constitution. By selectively putting the adapter covers **20**, **21** or **22** on the lens-fitted photographic film unit **2** with the first and the second lighting windows **9** and **10** based on the desired photofinishing type and having the photographed image processed, the user can obtain a photographic print of the desired photofinishing type.

[**0060**] For example, each rear adapter cover **25** of the adapter covers **20** to **22** carries a sample image of the picture to be obtained by its specific photofinishing, such that the user may select the adapter covers **20** to **22** in accordance with the intended photofinishing type. In order to obtain a color photographic print, the user photographs with the lens-fitted photographic film unit **2** without any adapter covers (see **FIG. 6A**). Thereby, three dot marks **65**, **66** and **67** are imprinted on the photo film **34***b* along with the photographed image. In order to obtain the sepia photographic print, the user puts the adapter cover **20** of Type 1 on the lens-fitted photographic film unit **2** then photographs (**FIG. 6B**). A single dot mark **65** is thus imprinted on the photo film **34***b* along with the photographed image. In order to obtain the monochrome photographic print, the user puts the adapter cover **21** of Type 2 on the lens-fitted photographic film unit **2** then photographs (**FIG. 6C**). Two dot marks **66** and **67** are thus imprinted on the photo film **34***b* along with the photographed image. In order to obtain a frame-added photographic print, the user puts the adapter cover **22** of Type 3 on the lens-fitted photographic film unit **2** then photographs (**FIG. 6D**). No dot mark is thus imprinted on the photo film **34***b* and only the photographed image is imprinted.

[**0061**] After photographing, the lens-fitted photographic film unit **2** is removed from the adapter covers **20**, **21** or **22** and handed to a photofinisher. The photofinisher reads out the bit marks **65** to **67** imprinted on the developed photographic film **34***b* and the prerecorded film data **83**, performs specific photofinishing on each picture frame based on the film data **83** and the bit marks **65** to **67**, and then produces the color, the sepia, the monochrome or the frame-added photographic prints.

[**0062**] Furthermore, it is possible to select a plurality of photofinishing using the same adapter cover. In this case, the adapter cover is provided with openings for exposing each of the first and the second lighting window **9** and **10**, and an opening/closing member to open and close the openings.

[**0063**] As show2n in **FIG. 8**, an adapter cover **103** is provided with a front adapter cover **105** and the rear adapter cover **25**. The front adapter cover **105** is provided with a light guide **106**, an opening/closing member **107**, openings **108** and **109** corresponding to the first and the second lighting window **9** and **10** selectively. The light guide **106** is disposed behind the front adapter cover **105** to cover the openings **108** and **109**. The opening/closing member **107** is formed of light-shielding plastic and disposed between the light guide **106** and the first and the second lighting windows **9** and **10**.

[**0064**] The light guide **106** comprises an external light incident portion **106***a* covering almost of the entire openings **108** and **109**, a flash light incident portion **106***b* disposed at the lower front of the flash light incident portion **106***b* disposed under the flash light emitting unit **7**, and a light emitting end **106***c* for emitting the light from the external light incident portion **106***a* or the flash light incident portion **106***b* to the first and the second lighting windows **9** and **10**.

[**0065**] The opening/closing member **107** comprises a plate member **107***a*, an opening **107***b*, and an operating projection **107***c*. The operating projection **107***c* protruding toward the front adapter cover **105** is disposed at one end of the opening **107***b* extending downward. When the adapter cover **103** is attached to the lens-fitted photographic film unit **2**, the operating projection **107***c* protrudes from the left end of an elliptic opening **105***a* on the front adapter cover **105**. Another end of the plate member **107***a* opposite to the operating projection **107***c* is provided with an opening **107***b* of approximately the same size as the first lighting window **9**.

[**0066**] The operation projection **107***c* is slidable from side to side within a slot **105***a*. When the operation projection **107***c* is set in a closing position, the opening **107***b* opens the first lighting window **9** and the plate member **107***a* cover the second lighting window **10** (see **FIG. 9A**). When the operation projection **107***c*, on the other hand, is set in an opening position, the opening/closing member **107** retreats from the first and the second lighting windows **9** and **10** to open them (see **FIG. 9B**). Accordingly, the first photography data optical path **9***a* is allowed to be effective and simultaneously the second photography data optical path **10***a* is blocked when the opening/closing member **107** is set in the closing position, while both photography data optical paths **9***a* and **10***a* are allowed to be effective when the opening/closing member **107** is set in the opening position.

[**0067**] In order to obtain the sepia photographic print for example, the user sets the operating projection **107***c* in the left end within the slot **105***a* as shown in **FIG. 9A**. Thereby, the first photography data optical path **9***a* is allowed to be effective and simultaneously the second photography data optical path **10***a* is blocked, and a single bit mark **65** is imprinted on the photographic film **34***b*.

[**0068**] On the other hand, in order to obtain the color photographic print, the user sets the operating projection **107***c* in the right end within the slot **105***a* as shown in **FIG.**

9B. Thereby, the plate member **107** retreats from the lighting windows **9** and **10** allowing the first and the second photography data optical paths **9***a* and **10***a* to be effective, and three bit marks **65** to **67** are imprinted on the photographic film **34***b*.

[**0069**] After exposing the entire photo film **34***b*, the lens-fitted photographic film unit **2** is removed from the adapter cover **103** and handed to the photofinisher. The photofinisher reads out the bit marks **65** to **67** imprinted on the developed photographic film **34***b* and the prerecorded film data **83**, performs specific photofinishing on each picture frame based on the film data **83** and the bit marks **65** to **67**, and then produces the color, the sepia, the monochrome or the frame-added photographic prints. The picture frame with a single dot mark **65** is processed with the sepia photofinishing, while the picture frame with the three dot marks **65** to **67** is processed with the color photofinishing. Accordingly, the adapter cover **103** enables the user to select two photofinishing types.

[**0070**] In the above embodiment, the first photography data optical path **9***a* is allowed to be effective and simultaneously the second photography data optical path **10***a* is covered when the opening/closing member **107** is set in the closing position. Both the first and the second photography data optical paths **9***a* and **10***a* become effective when the opening/closing member **107** is set in the opening position. However, it is also possible to form the same optical data as the adapter cover **21** of Type 2 by blocking the first photography data optical path **9***a*. In this case, the plate member is provided with the opening **107***b* of approximately the same shape and the size as those of the second lighting window **10**. When the opening/closing member **107** is set in the closing position, the opening **107***b* opens the second lighting window **10** to allow the second photography data optical path **10***a* to be effective and simultaneously the first lighting window **9** is covered with the plate member **107***a*. When the opening/closing member **107** is set in the opening position, the opening/closing member **107** retreats from the first and the second lighting windows **9** and **10** to allow both the first and the second photography data optical paths **9***a* and **10***a* to be effective.

[**0071**] Furthermore, it is also possible to form the same optical data as the adapter cover **22** of Type 3 by blocking both the first and the second photography data optical paths **9***a* and **10***a*. In this case, the opening/closing member **107** is not provided with the opening **107***b* to cover both the first and the second lighting windows **9** and **10** when it is set in the closing position. On the other hand, if the opening closing member **107** is set in the opening position, it retreats from both the first and the second lighting windows to allow both the fist and the second photography data optical paths **9***a* and **10***a* to be effective.

[**0072**] Since the opening/closing member **107** is disposed between the light emitting end **106***c* and the first and the second lighting windows **9** and **10**, as shown in **FIG. 8**, the flashlight entering from the flash light incident portion **106***b* and exiting from the light emitting end **106***c* cannot enter the second lighting window **10**.

[**0073**] Although each of the sepia, the monochrome and the frame-adding photofinishing are performed based on the combination of the film data **83** latently prerecorded on the photographic film **34***b* and the bit marks **65** to **67** in the above embodiment, it is also possible to perform photofinishing based only on the bit marks **65** to **67**.

[**0074**] Furthermore, it is also possible to provide more than three kinds of image processing. In this case, for example, the season in which the lens-fitted photographic film unit **2** is to be on the market is prerecorded in the film data **83**. By photographing with the lens-fitted photographic unit **2** with the adapter covers **20** to **22** selectively attached thereto, merging a seasonable pattern with the photographed image is designated based on the film data **83** and the bit marks **65** to **67**. Thereby, it is possible to increase the number of the types of the photographic print, using the lens-fitted photographic film unit **2** and the adapter covers **20** to **22**.

[**0075**] Although the maximum number of the bit marks **65** to **67** to be imprinted is three in the above embodiments, the number of the bit marks to be imprinted is determined based on the number of the photofinishing type.

[**0076**] Note that the present invention is applicable also to the camera in which an unexposed photographic film **34***b* is replicable.

[**0077**] Although the present invention has been described with respect to the preferred embodiments, the present invention is not to be limited to the above embodiments but, on the contrary, various modifications will be possible to those skilled in the art without departing from the scope of claims appended hereto.

What is claimed is:

1. An adapter cover removably attached to a camera, said camera including at least one lighting window formed on a front face of a camera body and one or more photography data optical paths for recording bit marks outside an exposure area by guiding the external light from said lighting window to said photographic film, at least one of said bit marks expressing an optical code for designating a photofinishing type, said adapter cover comprising:

a front adapter cover to be attached to said front face of said camera body, said front adapter cover blocking at least one of said photography data optical paths.

2. An adapter cover defined in claim 1, wherein said camera is a lens-fitted photographic film unit having said camera body preloaded with said photographic film.

3. An adapter cover defined in claim 2, further comprising a rear adapter cover for covering a rear face of said lens-fitted photographic film unit to accommodate said lens-fitted photographic film unit together with said front adapter cover, said rear adapter cover engages with said front adapter cover.

4. An adapter cover defined in claim 3, said photofinishing type is sepia photofinishing, monochrome photofinishing, color photofinishing, and frame-adding photofinishing.

5. An adapter cover defined in claim 1, wherein said camera is provided with plural lighting windows and plural photography data optical paths, said front adapter cover covers at least one of said lighting windows.

6. An adapter cover defined in claim 5, wherein said plural lighting windows are a first lighting window and a second lighting window, said plural photography data optical paths are a first photography data optical path, a second photography data optical path, and a third photography data optical path, the external light that enters said first lighting window is directed to said first photography data optical path and

said second photography data optical path, the external light that enters said second lighting window is directed to said third photography data optical path.

7. An adapter cover defined in claim 5, wherein said front adapter cover is formed of opaque plastic and covers all of said plural lighting windows.

8. An adapter cover defined in claim 5, wherein said front adapter cover is formed of opaque plastic and provided with a cover opening to face at least one of said plural lighting windows.

9. An adapter cover defined in claim 5, further comprising:

a flash opening formed on said front adapter cover and facing a flash light emitting unit of said camera; and

a light guide provided to said front adapter cover and having a first end located between said lighting window and said cover opening and a second end located between said flash light emitting unit and said flash opening, for guiding said external light and the flash light from said flash light emitting unit to said lighting window.

10. An adapter cover defined in claim 9, wherein one end of said light guide is located between said plural lighting windows and said cover opening.

11. An adapter cover defined in claim 10, further comprising an opening/closing member disposed in front of or behind said light guide, said opening/closing member is operated from outside of said front adapter cover to selectively open and close said plural lighting windows.

12. A lens-fitted photographic film unit system comprising:

A. a lens-fitted photographic film unit preloaded with a photographic film, said lens-fitted photographic film unit comprising:

a unit body having a photographic mechanism;

at least one lighting window formed on a front face of said unit body;

at least one photography data optical path for recording bit marks on the outside of an exposure area by guiding the external light from said lighting window to said photographic film, at least one of said bit marks expressing an optical code designating a photofinishing type;

B. one or more adapter covers removably attached to said front face of said camera body, said adapter cover blocking at least one photography data optical path.

13. A lens-fitted photographic film unit system defined in claim 12, wherein said adapter cover is a set of adapter covers including at least a first adapter cover and a second adapter cover and one of said adapter covers is selected and attached to said unit body, said first adapter cover is formed of opaque plastic and provided with a cover opening facing at least one of said plural lighting windows, said second adapter cover is formed of opaque plastic and covers said plural lighting windows.

14. A method for producing a photographic print comprising:

reading out an image recorded on a photographic film:

reading out an optical code expressed by at least one bit mark which is recorded at a time of photographing to correspond to said image;

performing photofinishing to said image based on said optical code; and

printing a processed image on a recording medium.

15. A method for producing a photographic print defined in claim 14, wherein said photofinishing includes sepia photofinishing for producing a sepia photographic print, monochrome photofinishing for producing a monochrome photographic print, color photofinishing for producing a color photographic print, and frame-adding photofinishing for producing a frame-added photographic print.

16. A method for producing a photographic print defined in claim 15, further comprising a step for reading out a film data prerecorded on said photographic film, said photofinishing is performed based on said film data and said optical code.

17. An adapter cover removably attached to a camera, said camera including at least one lighting window formed on a front face of said camera body and one or more photography data optical paths for recording bit marks on the outside of an exposure area by guiding the external light from said lighting window to said photographic film, at least one of said bit marks expressing an optical code, said adapter cover comprising:

a front adapter cover removably attached to said front face of said camera body, said front adapter cover blocking at least one of said photography data optical paths.

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