

[54] IDENTIFICATION CARD CAMERA

3,628,430 12/1971 Morse 354/109

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[52] U.S. Cl. 354/109; 354/110

[51] Int. Cl.² G03B 17/24

[58] Field of Search 354/109, 110, 119

[56] References Cited

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[57] ABSTRACT

An identification card camera which includes means for forming a composite image of a person and a data card simultaneously on two separate image planes. First film cartridge means are provided for positioning a frame of conventional photographic negative film in one of the image planes and second film cartridge means are provided for positioning a frame of instant positive print film in the second image plane. Means are also provided for simultaneously exposing both the negative and film frame and instant print film frame to thereby simultaneously provide a photographic identification card and a negative film print thereof.

2 Claims, 3 Drawing Figures

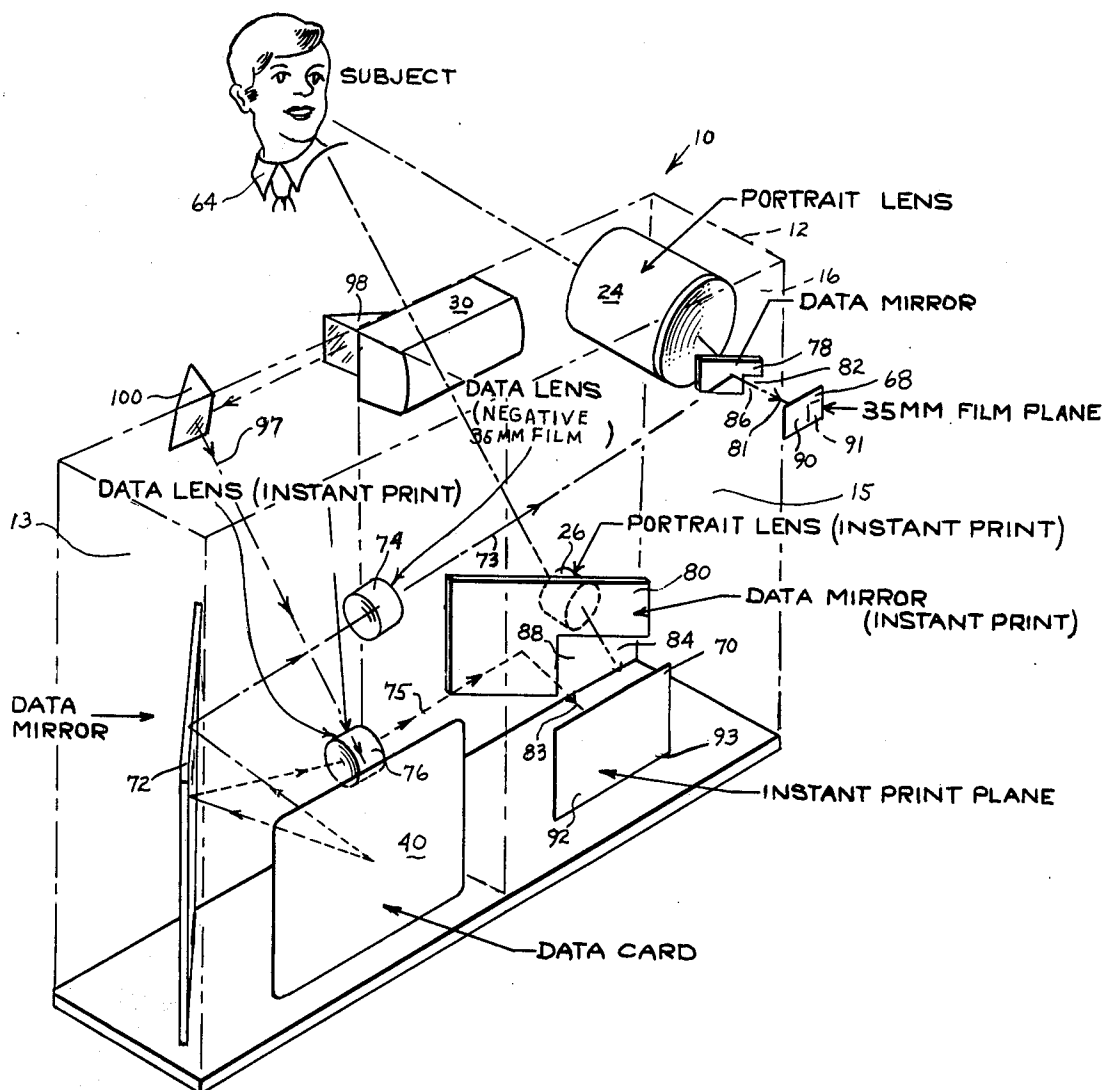


FIG. 1

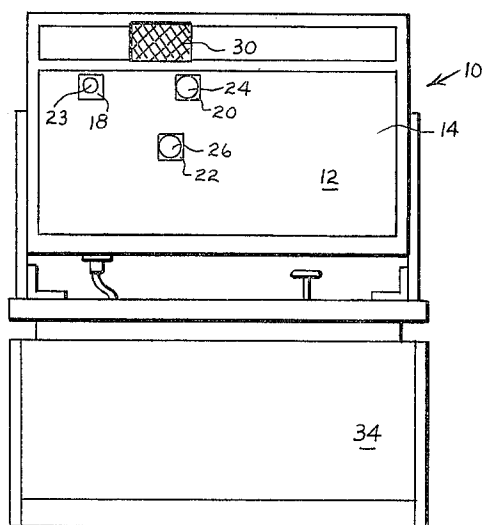
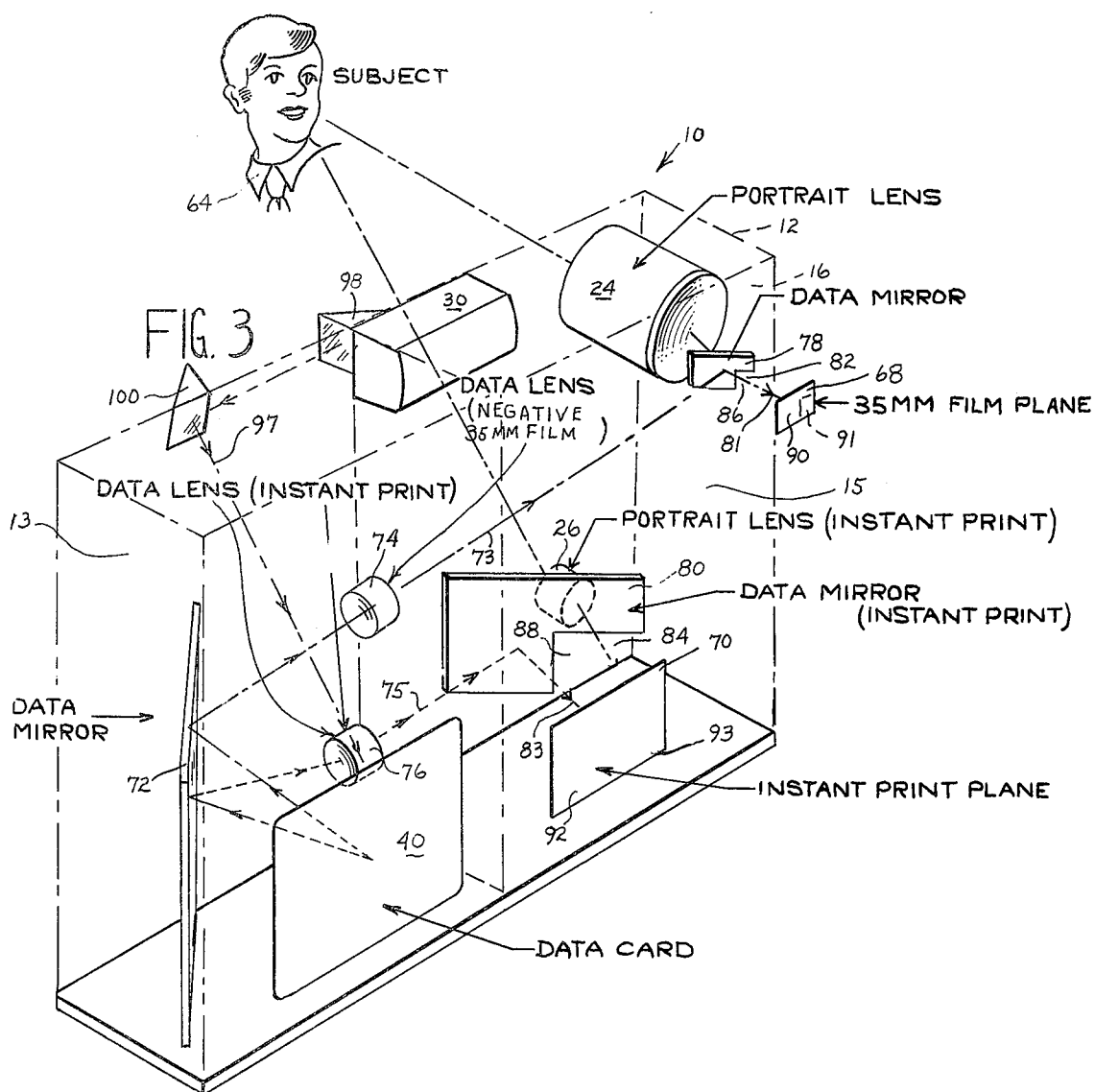
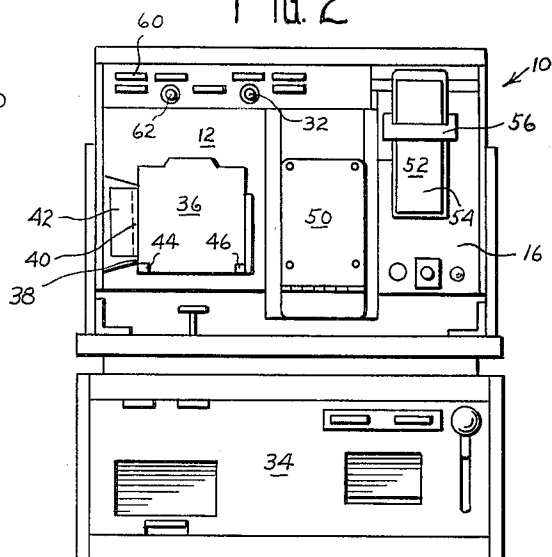


FIG. 2



IDENTIFICATION CARD CAMERA

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to identification cameras and in particular to an identification camera which includes means for producing both a positive film print and a negative film print of a composite subject.

2. Description of the Prior Art

Identification cards take many forms. Typical examples of such cards are the drivers license, credit card, bank identification card, and the like. Such identification cards are frequently relied upon as proof of a person's qualifications to drive a motor vehicle, of legal age to purchase alcoholic beverages, and as proof of identification for cashing checks or transacting credit purchases, and the like. It is correspondingly of paramount importance that identification cards provide the necessary information to accurately identify the holder thereof and be of such a manufacture that they are, as nearly as possible, tamper proof. These two needs have led to the development of the presently widely used photo identification card. This type of card typically includes a data portion which contains printed information such as the age, address, and physical statistics of a person and the photograph of the person. The photograph may be a separate photo which has been affixed to the identification card or, preferably, the photograph and identification portions are formed simultaneously on a single photographic print. In some instances, the identification card is further affixed to a stiff card and may be laminated between one or more layers of transparent plastic.

Two basic types of equipment or systems are now used to provide this type of identification card. The first utilizes a direct positive print, self-processing photographic film such as is manufactured by the Polaroid Corporation of 549 Technology Square, Cambridge, Mass. 02139. This type of system has the advantage of providing an instantly available identification card at the time and place of issuance thereof.

The second type of system utilizes conventional photographic film to produce a transparent photographic negative. The negatives are processed at centralized processing facilities to produce identification cards. This type of system has the advantage of providing a permanently available record at a centralized facility thereby substantially increasing the security, policing, and other control functions associated with the issuance of identification cards, credit cards, licenses, and the like. Further, because the latter cards are processed centrally, more sophisticated equipment can be provided to thereby provide a more sophisticated identification card.

SUMMARY OF THE INVENTION

The present invention is an identification camera for producing simultaneously both a positive print composite image photograph and a negative transparency photograph of a composite image identification card. Correspondingly, the camera in accordance with the present invention provides both the convenience of the instant print system and the control of the negative print. The identification camera comprises broadly first and second portrait lens means for simultaneously forming a first and a second image of a predetermined

object on a first and a second image plane, respectively, a data card, and means for removably receiving and holding said data card in an object plane. A first and second data lens means are provided for simultaneously forming a first and a second image of the data card and means are provided for transmitting the first and second images of the data card and the first and second images of the first object onto mutually exclusive and contiguous portions of the image planes to form first and second composite images thereof on the first and second image planes, respectively. A first film cartridge means is provided for positioning a frame of photographic negative film in the first image plane and a second film cartridge means is provided for positioning a frame of self-developing direct positive print film in the second image plane to receive thereon the first and second composite images, respectively. Means are provided for simultaneously exposing the positive print film and the negative film with identical ones of said composite images.

In a specific embodiment of the invention, the data card image transmitting means includes a pair of optically sequentially positioned mirrors such that the transmitted image is in a true direction, that is, writing and the like will not be inverted. Further, one of the mirrors is provided with an aperture, the object images being transmitted therethrough and that portion of the data card image that would be transmitted by the aperture being absent thereby enabling the contiguous positioning of the data card image and first object images.

It is therefore an object of the invention to provide an improved composite image photo identification camera which provides an instant positive print and negative film print of a composite image photo identification card simultaneously.

It is another object of the invention to provide such a camera having an optical system which provides substantially identical positive and negative film records.

BRIEF DESCRIPTION OF THE DRAWINGS

The above-mentioned and other features and objects of this invention and the manner of attaining them will become more apparent and the invention itself will be best understood by reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a front view of a camera in accordance with the present invention;

FIG. 2 is a rear plan view of the camera of the present invention; and

FIG. 3 is an optical schematic diagram of a camera in accordance with the present invention shown in perspective.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, there is shown in FIGS. 1 and 2 an identification camera 10 comprising a case 12 having front and back surfaces 14, 16, respectively. Case 12 is optically closed to prevent the entry of light thereinto and is divided into two closed light-tight compartments 13, 15. Surface 14 is provided with a plurality of apertures 18, 20, and 22 which have mounted therebehind a focusing light 24 and a pair of high quality lens-shutter assemblies 23, 26, respectively. Assemblies 23, 26 will pass images into compartment 15 when the shutter mechanisms thereof (not shown) are open.

Focusing light 24 is of conventional, commercially available manufacture. Similarly, portrait lens-shutter assemblies 23, 26 are conventional assemblies which include corrected lenses, an electrically driven shutter mechanism, and an adjustable aperture or "f" stop mechanism. Focusing light 24 and lens-shutter assemblies 23, 26 are operatively coupled together for either simultaneous mechanical or electrical motor driven adjustment whereby when a spot of light emanating from focus light 24 is in sharp focus on the surface of the object to be photographed, the lenses of assemblies 23, 26 are also in focus for the same object.

A conventional photoflash assembly 30 is also mounted within the enclosure 12, photoflash unit 30 providing illumination for the object or subject to be photographed and being operatively coupled to one or the other of assemblies 23, 26. Assemblies 23, 26 and photoflash unit 30 are correspondingly operated by means of a push button 32 mounted on rear wall 16 of enclosure 12. Each of the components is conventional and further description is not required.

While not a part of the present invention, camera 10 is shown fixedly mounted to a self-contained laminating apparatus 34. Laminating apparatus 34 is adapted to receive an identification card photograph thereinto, laminate the same between one or more layers of a suitable laminating plastic to provide a plastic sealed identification card.

In rear wall 16 is an identification card receiving and holding means 36. Means 36 includes a slot 38 through which an identification or information card 40 may be slidably received laterally (as viewed in FIG. 2). Card 40 has printed data on one surface thereof and is held in a position within compartment 13 with the printed data facing surface 14. The card 40 is typically a moderately stiff cardboard or paper of about 2 inches by 4 inches and may be provided with a removable end portion 42 to facilitate insertion and removal of the card into and out of the slot 38. A door 36 is pivotably mounted over the slot 38 by means of suitable hinges 44, 46 to provide access to the card should the latter become jammed and to facilitate cleaning of the card receiving slot 38.

A first film cartridge means 50 is also mounted to rear wall 16. Means 50 comprises a conventional self-processing positive print film cartridge such as the commercially available Polaroid film cartridge. As is well known to those skilled in the art, cartridge 50 includes the required structure to support a plurality of frames of positive print film one at a time within compartment 15 in a predetermined film plane as will be explained below and to effect development of the positive print film after exposure thereof. Typically, the film processing is initiated by drawing a portion of the film packaging outwardly of the cartridge followed by the removal of the balance of the film with the exposed print after a predetermined time period of ten seconds or one minute.

Cartridge means 50 is removably secured to wall 16 and permits the rapid an simple substitution of film cartridges upon the exposure of all the film frames which have been loaded into the preceedingly used cartridge.

A second film cartridge means 52 includes means for supporting a multiplicity of frames of conventional negative type film such as conventional 35 millimeter film one at a time within compartment 15 in a second predetermined film plane. The cartridge comprises a

closed case 54 having therein a roll containing the multiplicity of frames of film (not shown) and a suitable drive mechanism which includes sprockets to index the film one frame at a time. The advancement of the film is effected in conventional manner well known to those skilled in the art and may be performed either mechanically or, in a preferred embodiment, by an electric motor and a Geneva mechanism. Cartridge 52 is retained in position by a spring loaded clamp 56 such that cartridges 52 may be rapidly and simply interchanged when all of the film frames within a particular cartridge have been exposed.

In commercial applications, appropriate indicator lights as at 60 are provided for indicating various operations of the cameras such as the exposure of film, advancement of film, the expending of all of the film in a cartridge, and failure of the camera mechanisms to properly advance, or for shutter and the like to operate. Similarly, a manual operating button 62 may be provided to effect automatic advancement of the film in one or both of the cartridge means 50 and 52.

Referring now to FIG. 3, there is shown an optical schematic of the camera 10. The various optical components are shown in their relative positions only and the enclosure 12 is shown in dashed lines for clarity, it being obvious to those skilled in the art that suitable light-tight enclosures are provided for preventing the passage of light into and between compartments 13 and 15.

Assemblies 24, 26 are positioned as stated above to focus on a subject or other object 64. The lens portions of assemblies 24, 26 are selected to have focal lengths to thereby form images of the subject 64 in image planes 68, 70, respectively. In a preferred embodiment of the invention, assemblies 24, 26 are adapted to form an image of the bust portion of a person. Further, the lens of assemblies 24, 26 are selected to form images having dimensions that occupy a space of about one-fourth the width and two-thirds of the height of the film frame to be exposed therewith.

The data card 40 is positioned within the means 36 (not shown in FIG. 3) and a first-surface precision mirror 72 is positioned in compartment 13 and in front (as viewed in FIG. 3) of the card 40 at an angle of about 45° with respect thereto. Mirror 72 thereby transmits the image of data card 40 along optical axes 73, 75 generally parallel to the surface of the card 40. The card 40 contains suitable indicia relating to the subject 64 being photographed. For example, the card 40 may contain a physical description such as height, weight, age, and sex. Further, the data card 40 may be imprinted with suitable indicia such as the seal of a State, a credit card logo, or the like. In a preferred embodiment, the printed indicia on card 40 is arranged to leave a blank area on that portion of the card that corresponds to that portion of the image of the card that is formed on the image planes 68, 70 that will contain the image of the subject 64 thereon as will be explained below.

Positioned optically beyond mirror 72 are a pair of data card lenses 74, 76. Lenses 74, 76 are positioned to focus on the data card 40. The image of data card 40 formed by lenses 74, 76 is subsequently transmitted via a pair of first surface mirrors 78, 80, respectively, along optical axes 81, 83 disposed at an angle of about 90° with respect to the optical axes 73, 75. Mirrors 78, 80 thus bend or fold the image of data card 40 formed by lenses 74, 76, transmitting same onto the respective

image planes 68, 70.

Mirrors 78, 80 further have a corner as at 82, 84, removed to form apertures 86, 88, respectively. It will now be observed that the apertures 86, 88 permit the images of the subject 64 formed by assemblies 24, 26 to pass beyond the mirrors 78, 80 and onto corner portions 91, 93 of the image planes 68, 70, respectively. Correspondingly, two images of the subject 64 are formed simultaneously on image planes 68, 70. Simultaneously with the formation of these images, a pair of identical images of data card 40 are formed or focused onto the image planes 68, 70.

A single film frame 90 of negative film contained in film cartridge 52 is positioned in the image plane 68. Similarly, a single frame 92 of positive print film is positioned in the image plane 70. It will now be seen that simultaneously, identical images of the subject 64 will be formed on corner portions 91, 93 of the film frames 90 and 92 and identical images of the data card 40 will be formed on the other portions of the film frames 90, 92.

Initially, the shutters (not shown) in assemblies 24, 26 are closed and the photoflash unit 30 is not illuminated. Under these conditions, no images, that is no image of either subjects 64 or data card 40, are formed on the film frames 90 and 92. However, when the shutters of assemblies 24, 26 are operated, the images of the subject 64 and data card 40 will be simultaneously and momentarily formed on the film frames 90, 92, as described above.

As stated above, the data card 40 is received within the slot 38 within the substantially light-tight interior of the enclosure 12. To provide a means of illuminating the data card 40, a pair of prisms 98, 100 are positioned as shown in FIG. 3 to intercept a portion of the light generated by photoflash unit 30 and transmit that light onto the data card 40. Therefore, it will be seen that if the photoflash unit 30 is synchronized to a flash in synchronism with the opening of the shutters of assemblies 24, 26, the data card 40 will be simultaneously illuminated thereby exposing the images thereof onto the appropriate film frames 90, 92. When the assemblies 24, 26 are not operated, that is, the shutters thereof are closed, the photoflash unit 30 is not illuminated, only a minimal amount of light will be transmitted to the data card 40. Further, by placing a suitable light-tight wall 97 (shown in dashed lines only) between the data card holding means 36 and film frames 90, 92, the only light that will be transmitted to the film frames 90, 92 will be that transmitted by lens 74, 76. Further, it is preferable that slot 38 be provided with a suitable light blocking fabric (not shown) which will close the slot 38 when a data card 40 is not received therein. This may be a suitable velvet-like material as is conventional in the photographic arts.

From the above description it will be seen that the camera 10 of the present invention provides a means for producing simultaneously both a negative photographic film print and a positive print of a subject 64 positioned on a photographic negative and photographic positive print of a data card simultaneously, with the images of the subject 64 and the data card 40 being superimposed on different portions of the film frames 90, 92. The optical system for effecting this is of minimal complexity and requires only the use of synchronized shutters and a synchronized photoflash unit. By reason of this structure, a substantially instantly available identification card having the picture of the

owner thereof can be produced and, simultaneously therewith, a permanent negative record of the identification card is produced. Both the positive and the negative record contain identical pictures which can be used both for centralized record keeping and monitoring of credit cards, licenses, and the like, and provides an effective means for producing a duplicate of the positive print identification card should the latter be lost or damaged. Both the positive print and negative film, because they each comprise a single exposure of a composite image of both the subject 64 and data card 40, are exceptionally difficult to alter without noticeably defacing the film records.

While there have been described above the principles of this invention in connection with specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation to the scope of the invention.

What is claimed is:

1. An identification system camera comprising first and second portrait lens means for simultaneously forming first and second images of a predetermined object in first and second generally coplanar image planes, respectively, a data card and means for removably receiving and holding said data card, first and second data lens means for simultaneously forming first and second images of said data card, first and second image transmitting means for transmitting said first object and said first data card images and said second object and said second data card images onto mutually exclusive and contiguous portions of said first and second image planes, respectively, to thereby form composite images thereof on said first and said second image planes, said portrait lens means each including a shutter mechanism, a photo flash device including means for illuminating said data card, said shutter mechanisms and said photo flash device being coupled together for synchronous operation, a first film cartridge means for positioning a frame of photographic negative film in said first image plane and second film cartridge means for positioning a frame of direct positive self-processing film in said second image plane, a light-tight enclosure having first and second light-tight compartments enclosing said first and second film frames, said first and second object and said first and second data card images being transmitted into said enclosure through said first and second portrait lens means and said first and second data lens means, respectively, and means for simultaneously exposing said negative film and said positive print film with identical ones of said composite images, said receiving and holding means holding said data card in said second compartment, said image transmitting means including a first-surface mirror positioned within said second compartment and optically in front of said data card and at an angle of about 45° with respect thereto and a pair of second first-surface mirrors positioned within said first enclosure at an angle of about 45° with respect to said image planes, said first and second data lens means being disposed optically between said first-surface mirror and individual ones of said second first-surface mirrors, respectively, and in a position to intercept the image transmitted through said first and second data lens means by said first-surface mirror, said pair of first-surface mirrors each having a portion thereof removed to define first and second apertures, said first and second images being transmitted through said apertures onto said first and second image planes, respec-

tively.

2. An identification system camera comprising first and second portrait lens means for simultaneously forming first and second images of a predetermined object in first and second image planes, respectively, a data card and means for removably receiving and holding said data card, said data card and said first and second image planes being generally coplanar, first and second data lens means for simultaneously forming first and second images of said data card, first and second image transmitting means for transmitting said first object and said first data card images and said second object and said second data card images onto mutually exclusive and contiguous portions of said first and second image planes, respectively, to thereby form composite images thereof on said first and said second image planes, said portrait lens means each including a shutter mechanism, a photo flash device including means for illuminating said data card, said shutter mechanisms and said photo flash being coupled together for synchronous operation, a first film cartridge means for positioning a frame of photographic negative film in said first image plane and second film cartridge means for positioning a frame of direct positive self-processing film in said second image plane, a light-tight enclosure having first and second light-tight compartments enclosing said first and second film frames, said first and second object and said first and second data card images being transmitted into said enclosure through said first and second portrait lens means and said first and second data lens means, respectively, and means for simultaneously exposing said negative film and said positive print film with identical ones of said composite images, said receiving and holding means holding said data card in said second compartment, said first and second portrait lens means and said first and second data card lens means being mounted to the walls of said first compartment to pass images there-

into, said data card illuminating means including at least one light transmitting element mounted externally of said first compartment and adjacent said photo flash unit to intercept and transmit a portion of the light therefrom into said second compartment and onto said data card, said first cartridge means including a closed container having therein a multiplicity of frames of photographic negative film and including means for advancing said film in said cartridge means one frame at a time, said cartridge means being removably mounted to said enclosure with one of said frames thereof being exposed to the interior of said first compartment, said second cartridge means including means for holding a plurality of frames of positive print photographic film, said second cartridge means being mounted to said enclosure with one frame of said positive print film exposed to the interior of said first compartment, said image transmitting means including a first-surface mirror positioned within said second compartment and optically in front of said data card and at an angle of about 45° with respect thereto and a pair of second first-surface mirrors positioned within said first enclosure at an angle of about 45° with respect to said image planes, said first and second data lens means being disposed optically between said first-surface mirror and individual ones of said second first-surface mirrors, respectively, and in a position to intercept the image transmitted through said first and second data lens means by said first-surface mirror, said pair of first-surface mirrors each having a portion thereof removed to define a first and second apertures, said first and second images being transmitted through said apertures onto said first and second image planes, respectively, said pair of first-surface mirrors being generally rectangular and having one corner thereof removed to thereby define said apertures.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,928,863 Dated December 23, 1975

Inventor(s) Charles J. Stewart, et al

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 2, line 47 after "front" insert - plan -.

Column 8, line 32 after "define" delete - a -.

Signed and Sealed this

first Day of June 1976

[SEAL]

Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents and Trademarks

UNITED STATES PATENT OFFICE
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