BOUNDARY SETTING DEVICES AND METHOD

Boundary setting device for binocular visioned observers, including a low powered light source (75, 21, 22, 23…2n) having a predetermined configuration for defining the boundary of a zone of a scene. A sighting tube (70) defines a viewing axis for the light source, including an optical void (76) around the light source. When the low powered light source is viewed through one eye (Eye No. 1) of the observer and a scene containing a section to be encompassed within the boundary is viewed by the other eye (Eye No. 2) of the observer, an optically fused image is presented to the observer with the light source having a predetermined configuration bounding the section to be encompassed in the scene.

*(Referred to in PCT Gazette No. 06/1989, Section II)*
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BACKGROUND OF THE INVENTION:

The object of the present invention is to provide improvements in optic arrangements for binocular visioned people which is useful particularly for cameras, video cameras and other devices in which a view finder imaging system is provided. The present invention depends on the phenomena of the human brain which uses images viewed by one eye with images viewed by the other eye to superpose an optically produced boundary frame image upon the image of a scene viewed through the other eye. The boundary image in a preferred embodiment is surrounded by an optical void as a black or nonvisible background of neutral background immediately surrounding the light forming the boundary frame. The boundary setting device for binocular visioned persons according to this invention includes a low level light source in a predetermined geometric pattern such as rectangular or circular which, in the preferred embodiment, is an electronic image produced on a cathode ray tube (CRT), or a back lighted liquid crystal display device. When the boundary geometric pattern from the low level light source is viewed through one eye of the observer and a scene containing a section to be encompassed within the boundary is viewed by the other eye of the observer, an optically fused image is presented to the observer with the light source means having the predetermined configuration bounding the section being encompassed in the scene.
When the video camera has a zoom lens attached, and a zoom lens control circuit, the boundary frame is adjusted contemporaneously to encompass a smaller or larger portion of the scene as presented to the human observer. In other words, when the boundary frame is rectangularly shaped, the frame actually reduces or increases in size since the eye of the observer which is viewing the scene unabated, does not see any enlargement or reduction in image, the frame therefore is increased in size or reduced in size to encompass smaller or larger portion of the actual image which is presented to the brain of the observer.

Thus, the invention provides an apparatus and method of presenting to the camera, video camera operator, and typically a home video camera operator, the scene as fully viewed through one eye and a boundary setting device which is oriented with the camera and viewed through the other eye. Thus, when one eye is positioned on the electronic view finder and viewing the boundary frame which is an artificial light established in the view finder electronic CRT, the operator can get a significantly better perspective and feel for what he is including or not including in his video filming. Furthermore, by adjusting the size of the boundary frame according to and contemporaneous with adjustments in the zoom lens, the camera operator is provided with a boundary frame that is adjusted in size against an enlarged field of vision. Moreover, a switch is provided so that the electronic view finder can be operated
in the normal fashion and the boundary setting device of this invention disabled, thus providing the user with a low cost alternative view finder system.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other objects, advantages and features of the invention will become more clear when considered with the following specification and accompanying drawings wherein:

Fig. 1a, is an illustration of the application of the invention to a boundary setting device for framing a portion of a scene for a camera, such as a portable TV camera, Fig. 1b illustrates the eye No. 1 and No. 2 views and the optically fused view, and Fig. 1c illustrates one of the eight LED's used to form the light source in a predetermined boundary framing configuration,

Fig. 2 is a block diagram of a electronic view finder system applied to a video camera having a zoom lens and a zoom lens control,

Fig. 3 is a top plan view of a video camera having an electronic view finder attached,

Figs. 4a and 4b illustrate typical camera arrangements for electronic view finder positions,

Fig. 5 illustrates the scene viewed through the electronic view finder with various adjustments with the zoom lens Z1, Z2...Zn depicted, and

Fig. 6a illustrates the boundary image presented to eye No. 1, Fig. 6b illustrates the full field of vision of the
observer in eye No. 2, Fig. 6c presents the fused image
presented to the observer in Fig. 3, and Fig. 6d illustrates a
change to a smaller boundary frame $Z_n$ in the fused image.

DETAILED DESCRIPTION OF THE INVENTION

In Figs. 1a, 1b and 1c, a plurality of light sources
75-1, 75-2...75-N of predetermined shape are arrayed in a
desired framing pattern (square, but circular, rectangular or
other geometrical boundary shape may be used) and surrounded by
an optical void 76 in tube 70 and mounted on a portable TV
camera 71. When eye No. 1 of the observer views the array of
light sources and optical void 76 (Fig. 1a), and eye No. 2
views the full scene (Fig. 1b middle), a fused image is
presented to the observer with the light elements 75-1,
75-2...75-N framing or setting the boundary of the image to be
captured on tape or film. The individual light sources may be
light emitting diodes 75LED shown in Fig. 1c in which a bar of
light 75B is emitted when the leads 75C are energized.

Referring now to Figs. 4a and 4b, typical commercial
video or television cameras sold for the home or commercial
user are illustrated, Fig. 4a being a typical home video camera
from Panasonic (Matsushita) wherein the electronic view finder
11 is positioned on the right side of the camera for viewing by
the right eye (eye No. 1) of an observer but it could just as
easily be switched or positioned on the left side for viewing
through the left eye by the observer. The camera has a
telephoto or zoom lens 12 and a zoom lens control system (shown
in Fig. 2). A similar system is shown in Fig. 4b, which is a Sony Corporation type home video or commercial camera. In this case, the electronic view finder 13 is positioned on the top of camera 14 and a zoom lens or telephoto lens system 15 is provided with a similar control system. Audio systems such as a microphone 16 are likewise provided and form no part of the present invention. In either case, eye No. 1 is the eye viewing through the electronic view finder and eye No. 2 is the eye viewing the scene. (In Fig. 4a, eye No. 1, the right eye of the observer, is viewing the boundary framing device through the electronic view finder and in Fig. 4b, the left eye is designated as eye No. 1 and is viewing the image or boundary framing image set up in electronic view finder.) Both view finders 11 and 13 are oriented with the viewing camera so that when eye No. 1 is properly viewing the boundary frame in the electronic viewing device, his head is generally aligned along the axis of the electronic view finders 11 and 13. The electronic view finders are oriented with the axis of the camera 20 and 21, respectively. As shown in Fig. 3, the axis of the camera is designated as 23 and the axis of the electronic view finder is designated as 24 and the axis of the eye No. 2 is designated as 25. These are all oriented towards a common scene.

Referring now to Fig. 2, the camera's zoom lens 26 (which may be either lens 12 or 15 of the camera shown in Figs. 4a and 4b, respective) is adjusted by a zoom lens control circuit 27
which adjusts the magnification by the zoom lens upon the
electronic imaging portion of the video camera 28 which is
designated as electronic image of scene. This may be a typical
solid state electronic imaging device CCD such as used in
conventional video recorders or cam-corders to produce on the
output thereof an electronic image (digital or analog) to be
recorded on a video cassette recorder tape storage device 29.
At the same time, the electronic image is typically presented
to a CRT or cathode ray tube or liquid crystal view finder or
other electronic display screen 30. However, according to the
present invention, a view finder image selector 31 is an
electronic switch for selecting either the electronic image of
scene for presentation to the observer in CRT viewing device
view finder 30 in the normal fashion or an electronically
generated boundary image according to the present invention.
The view finder image selector 32 is an electronic switch
switchable between the image presented by the electronic
boundary image size control and storage device 33 or the usual
electronic image from the video imaging device or CCD 28.
According to this invention, the electronic boundary image size
control and storage may be an electronic storage device such as
a read-only memory (ROM) 34 similar to those used for storing
data and generating images corresponding to the date and time
are stored in a conventional video camera, except in the
present case, the image stored and generated is a boundary
framing image which may be increased or decreased in size in
accordance with adjustments in the zoom control 27. Thus, whenever a control signal issues from zoom control 27 to adjust zoom lens 26, a signal is also applied to boundary image size control and storage 33 to select a boundary image size from a storage (typically a read only memory ROM but which may be a computer program for producing an image adjustable in size according to the zoom control signal) to be supplied to the CRT view finder 30 via the view finder image selector switch 32. As shown in Fig. 5, the size of the boundary frame image can vary from a size \(Z_0\) down to a small size \(Z_n\) and in various different size in between.

As shown in Fig. 6a, 6b, 6c and 6d, the boundary frame image presented in the CRT view finder 30 is viewed by eye No. 1 (Fig. 6a) while, at the same time, a scene is viewed by eye No. 2 (Fig. 6b). If the boundary frame viewed by eye No. 1 is of a size \(Z_1\) initially, which would frame most of the individual shown in Fig. 6b as viewed by eye No. 2, the composite or fused image of Fig. 6c illustrates the fused image with boundary frame \(Z_1\) and the same individual in the scene of Fig. 6b. When the zoom control 27 is operated to enlarge, for example, the image, the electronic image of the scene, a reduced size frame \(Z_n\) is presented to the eye No. 1 viewing the electronic view finder 30. This smaller boundary frame \(Z_n\) is fused with the image viewed by eye No. 2 (the image, however, remains of the same size as viewed by eye No. 2).
The view presented by the electronic view finder 30 is preferably a black CRT screen (see Fig. 5) with the illuminated boundary frame $Z_0$, $Z_1$...$Z_n$ being a low light level image which the brain fuses with the image produced by the other eye.

While the invention has been shown and described in relation to the preferred embodiments, it will be appreciated that various modifications and adaptations of the invention will be readily apparent to those skilled in the art and it is intended to encompass such modifications and adaptations within the spirit and scope of the claims appended hereto.

WHAT IS CLAIMED IS:
CLAIMS

1. Boundary setting device for binocular visioned observers, comprising, in combination,
   a low powered light source means having a predetermined configuration for defining the boundary of a zone of a scene,
   sighting tube means defining a viewing axis for said light source means, including means forming an optical void around said light source means,
   whereby when said low powered light source means is viewed through one eye of said observer and a scene containing a section to be encompassed within said boundary is viewed by the other eye of said observer, an optically fused image is presented to the observer with said light source means having a predetermined configuration bounding said section to be encompassed in said scene.

2. A camera scene framing device comprising,
   a boundary setting device for a binocular visioned person, including:
   a low powered light source means having a predetermined configuration for defining the boundary of a zone of a scene to be framed, and means to energize said light source,
   sighting tube means defining a viewing axis for said light source means, including means forming an optical void around said light source means,
   whereby when said low powered light source means is viewed through one eye of said person and a scene containing a
section to be framed within said boundary is viewed by the other eye of said person, an optically fused image is presented to the person with said light source bounding said section to be framed on said scene.

3. In an electronic view finder having an electronic display screen, means for producing an electronic image and means for causing said electronic image to cause a visual display on said display screen, the improvement wherein said electronic image is a boundary frame and a neutral background and means for electronically adjusting said boundary frame in a predetermined manner whereby when a binocular visioned observer views the image of said electronic image with one eye and a scene with the other eye, an optically fused image of said scene and electronic image is presented to the brain of said observer.

4. The electronic view finder defined in claim 3 wherein said electronic view finder is a part of a video camera recording system including a zoom lens and a zoom lens control means, and said means for electronically adjusting said boundary frame includes said zoom lens control means whereby the size of said boundary frame is adjusted contemporaneously with adjustments of said zoom lens.

5. The electronic view finder defined in claim 4 including image select switch means for selectively connecting said electronic display screen to one of said boundary frame as a scene from said video camera.
6. The electronic view finder defined in claim 4 wherein said boundary frame is reduced in size as said zoom lens control means optically enlarges and said video camera records a portion of the scene viewed by said other eye.

7. In a method of presenting a framed image in the electronic image view finder of a video camera, the improvement wherein an electronic boundary frame light image is presented to the one eye of the observer viewing said electronic image view finder and the other eye of said observer views the scene to be recorded by said camera bounded by said boundary frame light image and surrounding image, and an optically fused image of the respective scenes viewed through the two eyes of said observer is presented to the brain of said observer.

8. The method defined in claim 7 wherein said camera has a zoom lens and a zoom lens control device the area encompassed by said boundary frame light image is changed synchronously with changes in said zoom lens by said zoom lens control device.
INTERNATIONAL SEARCH REPORT

I. CLASSIFICATION OF SUBJECT MATTER

According to International Patent Classification (IPC) or to both National Classification and IPC
IPC(4): G03B 13/02
U.S. CL.: 354/219, 356/3, 247

II. FIELDS SEARCHED

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Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched

III. DOCUMENTS CONSIDERED TO BE RELEVANT

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<th>Category</th>
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* Special categories of cited documents:
  - "A" document defining the general state of the art which is not considered to be of particular relevance
  - "E" earlier document but published on or after the international filing date
  - "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
  - "O" document referring to an oral disclosure, use, exhibition or other means
  - "P" document published prior to the international filing date but later than the priority date claimed

  "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
  "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step
  "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
  "A" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search | Date of Mailing of this International Search Report
20 OCTOBER 1988 | 18 NOV 1988

International Searching Authority
ISA/US

Signature of Authorized Officer
MICHAEL L. GELLNER

Form PCT/ISA/210 (second sheet) (Rev.11-87)
FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

VI. OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE 10

This International search report has not been established in respect of certain claims under Article 17(2) (a) for the following reasons:
1. Claim numbers ........... because they relate to subject matter [12] not required to be searched by this Authority, namely:

2. Claim numbers ........... because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out [13], specifically:

VII. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING 11

This International Searching Authority found multiple inventions in this international application as follows:
Claims 1 and 2, drawn to a boundary setting device. Claims 3 to 8 drawn to an electronic view finder. The inventions do not meet the requirements for Unity of Invention because they are not directed to a single general inventive concept. Claims 1 and 2 do not include electronic means and claims 3 to 8 do not include a light source and a sight tube.
1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.
2. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:

1 & 2

4. As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest
□ The additional search fees were accompanied by applicant's protest.
□ No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (supplemental sheet (2)) (October 1981)

REPLACED
Boundary setting device for binocular visioned observers, including a low powered light source (75, 2₁, 2₂, 2₃...₂ₙ) having a predetermined configuration for defining the boundary of a zone of a scene. A sighting tube (70) defines a viewing axis for the light source, including an optical void (76) around the light source. When the low powered light source is viewed through one eye (Eye No. 1) of the observer and a scene containing a section to be encompassed within the boundary is viewed by the other eye (Eye No. 2) of the observer, an optically fused image is presented to the observer with the light source having a predetermined configuration bounding the section to be encompassed in the scene.
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BOUNDARY SETTING DEVICES AND METHOD

BACKGROUND OF THE INVENTION:

The object of the present invention is to provide improvements in optic arrangements for binocular visioned people which is useful particularly for cameras, video cameras and other devices in which a view finder imaging system is provided. The present invention depends on the phenomena of the human brain which uses images viewed by one eye with images viewed by the other eye to superpose an optically produced boundary frame image upon the image of a scene viewed through the other eye. The boundary image in a preferred embodiment is surrounded by an optical void as a black or nonvisible background of neutral background immediately surrounding the light forming the boundary frame. The boundary setting device for binocular visioned persons according to this invention includes a low level light source in a predetermined geometric pattern such as rectangular or circular which, in the preferred embodiment, is an electronic image produced on a cathode ray tube (CRT), or a back lighted liquid crystal display device. When the boundary geometric pattern from the low level light source is viewed through one eye of the observer and a scene containing a section to be encompassed within the boundary is viewed by the other eye of the observer, an optically fused image is presented to the observer with the light source means having the predetermined configuration bounding the section being encompassed in the scene.
When the video camera has a zoom lens attached, and a zoom lens control circuit, the boundary frame is adjusted contemporaneously to encompass a smaller or larger portion of the scene as presented to the human observer. In other words, when the boundary frame is rectangularly shaped, the frame actually reduces or increases in size since the eye of the observer which is viewing the scene unaided, does not see any enlargement or reduction in image, the frame therefore is increased in size or reduced in size to encompass smaller or larger portion of the actual image which is presented to the brain of the observer.

Thus, the invention provides an apparatus and method of presenting to the camera, video camera operator, and typically a home video camera operator, the scene as fully viewed through one eye and a boundary setting device which is oriented with the camera and viewed through the other eye. Thus, when one eye is positioned on the electronic view finder and viewing the boundary frame which is an artificial light established in the view finder electronic CRT, the operator can get a significantly better perspective and feel for what he is including or not including in his video filming. Furthermore, by adjusting the size of the boundary frame according to and contemporaneous with adjustments in the zoom lens, the camera operator is provided with a boundary frame that is adjusted in size against an enlarged field of vision. Moreover, a switch is provided so that the electronic view finder can be operated
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**DETAILED DESCRIPTION OF THE INVENTION**

In Figs. 1a, 1b and 1c, a plurality of light sources 75-1, 75-2...75-N of predetermined shape are arrayed in a desired framing pattern (square, but circular, rectangular or other geometrical boundary shape may be used) and surrounded by an optical void 76 in tube 70 and mounted on a portable TV camera 71. When eye No. 1 of the observer views the array of light sources and optical void 76 (Fig. 1a), and eye No. 2 views the full scene (Fig. 1b middle), a fused image is presented to the observer with the light elements 75-1, 75-2...75-N framing or setting the boundary of the image to be captured on tape or film. The individual light sources may be light emitting diodes 75LED shown in Fig. 1c in which a bar of light 75B is emitted when the leads 75C are energized.

Referring now to Figs. 4a and 4b, typical commercial video or television cameras sold for the home or commercial user are illustrated, Fig. 4a being a typical home video camera from Panasonic (Matsushita) wherein the electronic view finder 11 is positioned on the right side of the camera for viewing by the right eye (eye No. 1) of an observer but it could just as easily be switched or positioned on the left side for viewing through the left eye by the observer. The camera has a telephoto or zoom lens 12 and a zoom lens control system (shown...
in Fig. 2). A similar system is shown in Fig. 4b which is a Sony Corporation type home video or commercial camera. In this case, the electronic view finder 13 is positioned on the top of camera 14 and a zoom lens or telephoto lens system 15 is provided with a similar control system. Audio systems such as a microphone 16 are likewise provided and form no part of the present invention. In either case, eye No. 1 is the eye viewing through the electronic view finder and eye No. 2 is the eye viewing the scene. (In Fig. 4a, eye No. 1, the right eye of the observer, is viewing the boundary framing device through the electronic view finder and in Fig. 4b, the left eye is designated as eye No. 1 and is viewing the image or boundary framing image set up in electronic view finder.) Both view finders 11 and 13 are oriented with the viewing camera so that when eye No. 1 is properly viewing the boundary frame in the electronic viewing device, his head is generally aligned along the axis of the electronic view finders 11 and 13. The electronic view finders are oriented with the axis of the camera 20 and 21, respectively. As shown in Fig. 3, the axis of the camera is designated as 23 and the axis of the electronic view finder is designated as 24 and the axis of the eye No. 2 is designated as 25. These are all oriented towards a common scene.

Referring now to Fig. 2, the camera's zoom lens 26 (which may be either lens 12 or 15 of the camera shown in Figs. 4a and 4b, respective) is adjusted by a zoom lens control circuit 27
which adjusts the magnification by the zoom lens upon the
electronic imaging portion of the video camera 28 which is
designated as electronic image of scene. This may be a typical
solid state electronic imaging device CCD such as used in
conventional video recorders or cam-corders to produce on the
output thereof an electronic image (digital or analog) to be
recorded on a video cassette recorder tape storage device 29.
At the same time, the electronic image is typically presented
to a CRT or cathode ray tube or liquid crystal view finder or
other electronic display screen 30. However, according to the
present invention, a view finder image selector 31 is an
electronic switch for selecting either the electronic image of
scene for presentation to the observer in CRT viewing device
view finder 30 in the normal fashion or an electronically
generated boundary image according to the present invention.
The view finder image selector 32 is an electronic switch
switchable between the image presented by the electronic
boundary image size control and storage device 33 or the usual
electronic image from the video imaging device or CCD 28.
According to this invention, the electronic boundary image size
control and storage may be an electronic storage device such as
a read-only memory (ROM) 34 similar to those used for storing
data and generating images corresponding to the date and time
are stored in a conventional video camera, except in the
present case, the image stored and generated is a boundary
framing image which may be increased or decreased in size in
accordance with adjustments in the zoom control 27. Thus, whenever a control signal issues from zoom control 27 to adjust zoom lens 26, a signal is also applied to boundary image size control and storage 33 to select a boundary image size from a storage (typically a read only memory ROM but which may be a computer program for producing an image adjustable in size according to the zoom control signal) to be supplied to the CRT view finder 30 via the view finder image selector switch 32. As shown in Fig. 5, the size of the boundary frame image can vary from a size $Z_0$ down to a small size $Z_n$ and in various different sizes in between.

As shown in Fig. 6a, 6b, 6c and 6d, the boundary frame image presented in the CRT view finder 30 is viewed by eye No. 1 (Fig. 6a) while, at the same time, a scene is viewed by eye No. 2 (Fig. 6b). If the boundary frame viewed by eye No. 1 is of a size $Z_1$ initially, which would frame most of the individual shown in Fig. 6b as viewed by eye No. 2, the composite or fused image of Fig. 6c illustrates the fused image with boundary frame $Z_1$ and the same individual in the scene of Fig. 6b. When the zoom control 27 is operated to enlarge, for example, the image, the electronic image of the scene, a reduced size frame $Z_n$ is presented to the eye No. 1 viewing the electronic view finder 30. This smaller boundary frame $Z_n$ is fused with the image viewed by eye No. 2 (the image, however, remains of the same size as viewed by eye No. 2).
The view presented by the electronic view finder 30 is preferably a black CRT screen (see Fig. 5) with the illuminated boundary frame $Z_0, Z_1, \ldots Z_n$ being a low light level image which the brain fuses with the image produced by the other eye.

While the invention has been shown and described in relation to the preferred embodiments, it will be appreciated that various modifications and adaptations of the invention will be readily apparent to those skilled in the art and it is intended to encompass such modifications and adaptations within the spirit and scope of the claims appended hereto.

WHAT IS CLAIMED IS:
CLAIMS

1. Boundary setting device for binocular visioned observers, comprising, in combination,

   a low powered light source means having a predetermined configuration for defining the boundary of a zone of a scene,

   sighting tube means defining a viewing axis for said light source means, including means forming an optical void around said light source means,

   whereby when said low powered light source means is viewed through one eye of said observer and a scene containing a section to be encompassed within said boundary is viewed by the other eye of said observer, an optically fused image is presented to the observer with said light source means having a predetermined configuration bounding said section to be encompassed in said scene.

2. A camera scene framing device comprising,

   a boundary setting device for a binocular visioned person, including:

   a low powered light source means having a predetermined configuration for defining the boundary of a zone of a scene to be framed, and means to energize said light source,

   sighting tube means defining a viewing axis for said light source means, including means forming an optical void around said light source means,

   whereby when said low powered light source means is viewed through one eye of said person and a scene containing a
section to be framed within said boundary is viewed by the
other eye of said person, an optically fused image is presented
to the person with said light source bounding said section to
be framed on said scene.

3. In an electronic view finder having an electronic
display screen, means for producing an electronic image and
means for causing said electronic image to cause a visual
display on said display screen, the improvement wherein said
electronic image is a boundary frame and a neutral background
and means for electronically adjusting said boundary frame in a
predetermined manner whereby when a binocular visioned observer
views the image of said electronic image with one eye and a
scene with the other eye, an optically fused image of said
scene and electronic image is presented to the brain of said
observer.

4. The electronic view finder defined in claim 3 wherein
said electronic view finder is a part of a video camera
recording system including a zoom lens and a zoom lens control
means, and said means for electronically adjusting said
boundary frame includes said zoom lens control means whereby
the size of said boundary frame is adjusted contemporaneously
with adjustments of said zoom lens.

5. The electronic view finder defined in claim 4
including image select switch means for selectively connecting
said electronic display screen to one of said boundary frame as
a scene from said video camera.
6. The electronic view finder defined in claim 4 wherein said boundary frame is reduced in size as said zoom lens control means optically enlarges and said video camera records a portion of the scene viewed by said other eye.

7. In a method of presenting a framed image in the electronic image view finder of a video camera, the improvement wherein an electronic boundary frame light image is presented to the one eye of the observer viewing said electronic image view finder and the other eye of said observer views the scene to be recorded by said camera bounded by said boundary frame light image and surrounding image, and an optically fused image of the respective scenes viewed through the two eyes of said observer is presented to the brain of said observer.

8. The method defined in claim 7 wherein said camera has a zoom lens and a zoom lens control device the area encompassed by said boundary frame light image is changed synchronously with changes in said zoom lens by said zoom lens control device.
**INTERNATIONAL SEARCH REPORT**

**I. CLASSIFICATION OF SUBJECT MATTER**

According to International Patent Classification (IPC) or to both National Classification and IPC

IPC(4): G03B 13/02
U.S. CL.: 354/219, 356/3, 247

**II. FIELDS SEARCHED**

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Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched 6

**III. DOCUMENTS CONSIDERED TO BE RELEVANT 9**

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* Special categories of cited documents: 10
  - "A" document defining the general state of the art which is not considered to be of particular relevance
  - "E" earlier document but published on or after the international filing date
  - "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
  - "O" document referring to an oral disclosure, use, exhibition or other means
  - "P" document published prior to the international filing date but later than the priority date claimed

* "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

* "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

* "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

* "Z" document member of the same patent family

**IV. CERTIFICATION**

Date of the Actual Completion of the International Search: 20 OCTOBER 1988

Date of Mailing of this International Search Report: 18 NOV 1988

International Searching Authority: ISA/US

Signature of Authorized Officer: [Signature]

MICHAEL L. GELLNER

Form PCT/ISA210 (second sheet) (Rev.11-87)
FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

V. OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE

This international search report has not been established in respect of certain claims under Article 17(2) (a) for the following reasons:

1. □ Claim numbers __________, because they relate to subject matter not required to be searched by this Authority, namely:

2. □ Claim numbers __________, because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

VI. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This International Searching Authority found multiple inventions in this international application as follows:
Claims 1 and 2, drawn to a boundary setting device. Claims 3 to 8 drawn to an electronic view finder. The inventions do not meet the requirements for Unity of Invention because they are not directed to a single general inventive concept. Claims 1 and 2 do not include electronic means and claims 3 to 8 do not include a light source and a sight tube.

1. □ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.

2. □ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. □ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers: 1 & 2

4. □ As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest
□ The additional search fees were accompanied by applicant’s protest.
□ No protest accompanied the payment of additional search fees.