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D E C I S I O N
of 27 April 1995

Case Number: T 1020/92 - 3.4.2

Application Number: 87900221.0

Publication Number: 0252937

IPC: G03B 35/00

Language of the proceedings: EN

Title of invention:
Recording and reproduction of images

Applicant:
ASPEX LIMITED

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 56, 84

Keyword:
"Inventive step of the third auxiliary request - (yes)"

Decisions cited:
-

Catchword:
-



Case Number: T 1020/92 - 3.4.2

D E C I S I O N
of the Technical Board of Appeal 3.4.2
of 27 April 1995

Appellant:

ASPEX LIMITED
Suite 34
140 Park Lane
London W1Y 3AA (GB)

Representative:

Brown, David Alan
Mathys & Squire
100 Grays Inn Road
London WC1X 8AL (GB)

Decision under appeal:

Decision of the Examining Division of the European
Patent Office dated 1 July 1992 refusing European
patent application No. 87 900 221.0 pursuant to
Article 97(1) EPC.

Composition of the Board:

Chairman: E. Turrini
Members: W. W. G. Hofmann
J. Saisset

Summary of Facts and Submissions

- I. The Appellant (Applicant) lodged an appeal against the decision of the Examining Division on the refusal of the application No. 87 900 221.0 (International publication No. WO 87/03972 and European publication No. 0 252 937).

The Examining Division had held that the application did not meet the requirements of Articles 52(1) and 56 EPC, having regard to the documents

(D1) CH-A-105 953

(D2) FR-A-1 002 902

(D3) FR-A-477 728

(D4) FR-A-2 544 514

(H) Kodak Workshop Series, publication No. KW13

(RH) R.S. HARRIS, The Colour of Motion.

- II. Oral proceedings were held, at the end of which the Appellant requested that the decision under appeal be set aside and a patent granted on the basis of

Claims 1 to 10 according to the main request,
Claims 1 to 9 according to the first auxiliary request,
Claims 1 to 9 according to the second auxiliary request,
Claims 1 to 8 according to the third auxiliary request,

all presented at the oral proceedings.

- III. The wording of the independent claims according to the **main request** on file at the time of the present decision reads as follows:

"1. A method of recording and reproducing a stereoscopic movie film, which includes recording through a single lens system onto successive frames of cinematographic

film an image of an object moving relative to the film, characterised in that the film is a colour film and the recording comprises:

(a) forming onto each single frame of the film through the single lens system a plurality of partial images of the object taken at successive intervals of time;

(b) the partial images being overlaid on the frame and being displaced in position relative to one another owing to the relative movement between the object and the film in the or each time interval between the formation of the successive partial images;

(c) the successive partial images being recorded in light of different colours;

(d) said different colours being selected so that the overlaid partial images combine to form a full colour image on reproduction of the image;

the method further including reproducing the image by projecting the image onto a screen by conventional means after processing the film, whereby, when the projected image is viewed through filter spectacles allowing the left and right eyes of the viewer to see different ones of the partial images or different combinations thereof, a stereoscopic effect is obtained."

"5. A colour film movie camera for carrying out the method of Claim 1, the camera having a single lens system and a mechanism for interposing a number of different colour filters in the optical path of the camera successively during the exposure of each frame of the film, so that the images formed by light passing through the filters are overlaid on each frame."

"10. A cinematographic film bearing images recorded by the method as claimed in any one of Claims 1 to 4, those images of the film which are of objects moving relative to the film exhibiting coloured fringes due to the displacement of the partial images thereof."

Claims 2 to 4 and 6 to 9 are respectively dependent on Claims 1 and 5.

The set of claims according to the **first auxiliary request** differs from that according to the main request only by the deletion of Claim 10.

Claim 1 according to the **second auxiliary request** reads as follows:

"1. A method of recording and reproducing a stereoscopic movie film, which includes recording through a single lens system onto successive frames of cinematographic film an image of an object moving relative to the film, characterised that (read: "in that") the film is a colour film and the recording comprises:

(a) forming onto each single frame of the film through the single lens system a plurality of partial images of the object taken at successive intervals of time by exposing each frame of the film through different colour filters successively interposed in the optical path between the object and the film so that the successive partial images are recorded in light of different colours;

(b) the partial images being overlaid on the frame and being displaced in position relative to one another owing to the relative movement between the object and the film in the or each time interval between the formation of the successive partial images;

(c) said different colours being selected so that the overlaid partial images combine to form a full colour image on reproduction of the image;

the method further including reproducing the image by projecting the image onto a screen by conventional means after processing the film, whereby, when the projected image is viewed through filter spectacles allowing the left and right eyes of the viewer to see different ones of the partial images or different combinations thereof, a stereoscopic effect is obtained."

Apart from the different numbering, the further independent Claims 4 and 9 according to the second auxiliary request fully correspond to Claims 5 and 10, respectively, of the main request.

Claims 2, 3 and 5 to 8 are respectively dependent on Claims 1 and 4.

The set of claims according to the **third auxiliary request** differs from that according to the second auxiliary request only by the deletion of Claim 9.

IV. The Appellant essentially argued as follows:

D4 does not relate to movie films, and the technique according to this document is suitable only for carefully composed and arranged still photographs. D4 only re-copies two existing films on to one single film emulsion using well known colour separation techniques. D4 mentions previously recorded stereo pairs, which means that the components of the stereo image are not on the same frame. The copying of movie film is not mentioned in D4 because this process would be very time consuming. Moreover, the adaptation of D4 to movie films would place unacceptable limitations on the artistic

freedom of the director making the film. Therefore, a skilled person would dismiss D4 as being an impractical concept for the production of successful stereoscopic movie films and would not consider combining it with D1.

If the skilled person would nevertheless try to combine the teachings of D1 and D4, he would conclude that the successive frames of D1 should be projected through different colour filters and the projected image viewed through appropriately coloured spectacles. To recognise additionally that different coloured images can be overlaid on a single frame is not taught or hinted at by the combination of D1 and D4. The presence of an inventive step should therefore be recognised.

A movie film made by the method of Claim 1 is distinguishable from other films because the colour shifting is detectable at the edges of parts of an object in motion, compared to the lack of colour shifting in the (motionless) remainder of the object. Therefore, Claim 10 directed to the cinematographic film should be allowable.

Reasons for the Decision

1. The appeal is admissible.
2. *Main request*
 - 2.1 Claim 1

2.1.1 Novelty

D1 (see in particular page 1, right-hand column, lines 1 to 17; page 2, right-hand column, line 20 to page 3, left-hand column, line 32; Claim 1; and Figure 1) discloses a method of recording and reproducing a stereoscopic movie film, which includes recording through a single lens system onto successive frames of cinematographic film an image of an object moving relative to the film (the disclosure relates (in addition to reproducing) to recording as well since it mentions that an ordinary cinematographic film is taken (e.g. page 1, right-hand column, lines 1 to 3, and page 2, left-hand column lines 38/39) which also implies that the recording is made through a single lens system). However, D1 does not disclose the features of the characterising portion of Claim 1, in particular it does not relate to colour film and to overlaying of partial images on a single frame of a film.

D4 (see in particular "abstract"; page 1, lines 3 to 6 and 11/ 12; page 2, lines 5 to 24; and Claim 1) relates to the production of diapositives having on a single frame of colour film two partial images of an object forming a stereoscopic pair. The partial images are overlaid on the frame and are displaced in position relative to one another owing to the image differences of the stereoscopic pair. The successive partial images are recorded in light of different colours, and the different colours are selected so that the overlaid partial images combine to form a full colour image. The image can be reproduced by projecting it onto a screen by conventional means (see Claim 1 of D4) after processing the film, whereby, when the projected image is viewed through filter spectacles allowing the left and right eyes of the viewer to see different ones of the partial images, a stereoscopic effect is obtained.

However, D4 does not relate to a movie film, and the partial images are not necessarily taken at successive intervals of time so that the displacement of the partial images does not necessarily depend on the relative movement between the object and the film.

The further documents on file are less relevant.

The subject-matter of Claim 1 is therefore novel in the sense of Article 54 EPC.

2.1.2 Inventive step

The principle, used in the method of Claim 1, of producing stereoscopic pairs of partial images by using images of the object taken at successive intervals of time, so that the stereoscopic effect and the differences between the partial images are determined by the relative movement between the object and the film, and the application of this principle to the recording and reproduction of stereoscopic cinematographic film, is known from D1. Since at the time when the method according to D1 was developed, film materials allowing encoded storing of separately recoverable images superimposed on the same frame (e.g. colour or polarisation recording and reproducing film) did not exist, it was natural that for this known method consecutive frames of the cinematographic film were chosen to form the successive partial images required, even though this avoidance of superposition on the film made it necessary to provide a double projection system for achieving the (polarisation encoded) superposition of the partial images on the projection screen.

It is evident that such a double projection system is expensive and complicated.

After colour film had become available, it was clear - and is disclosed in D4 - that the crucial point of encoded storage of different partial images on the same frame of a film and the consequential requirement of only a conventional projector could be achieved by differently colour encoding the partial images of a chosen stereoscopic pair and superimposing them on the colour film. Since the applicability of colour encoding does not depend on the origin of the partial images to be encoded, it was obvious that by using colour encoding and image superposition in the method according to D1 the projection system could be simplified while maintaining the principle of choosing for stereo pairs images of the object taken at successive time intervals, which successive images, according to D1, can be taken with a single lens system.

How, according to the combined teachings of D1 and D4, the stereoscopic pairs, ie the images in successive frames of the cinematographic film, are superimposed on single frames, does not have to be considered here since a person skilled in the art is certainly able to achieve such superposition (eg by the re-copying method described in D4) and, above all, in Claim 1 the way of achieving the superposition is not specified.

The Appellant argues that Claim 1 indeed specifies how the superposition is achieved, e.g. in the first three lines. However, the Board cannot find any such indication in Claim 1. The first three lines do not relate to superposition, and the indication that onto each single frame a plurality of partial images is formed (feature (a)) and that the successive partial images are recorded in light of different colours (feature (c)) only points to the fact that such superposition is desired (which is obvious from the

combination of D1 and D4), without giving any clear specification of a particular method going beyond the combined teachings of D1 and D4.

The Appellant also argues that a skilled person would not have considered applying the teaching of D4 to that of D1 since copying of a movie film would be too time consuming and the conditions set in D4 for the arrangement of the subject areas would be too limiting. However, the Appellant has not shown any proof for a general prejudice against such a combination, and the time consumption of copying (to which Claim 1 does not define an advantageous alternative) might be compensated by the possible use of a conventional projector. The limitations to the arrangement of the subject areas mentioned in D4 would obviously not apply to a combination of D4 with D1, the main point of the latter document being a different principle of creating a stereoscopic impression. The further argument of the Appellant that a skilled person would conclude from a combination of D1 and D4 that it is the successive frames of the film which should be projected onto the screen through different colour filters, is not convincing since D4 clearly relates to the superposition of the stereoscopic pair of partial images on the same frame of the film before projecting it.

For these reasons, it is concluded that the subject-matter of Claim 1 lacks an inventive step in the sense of Article 56 EPC.

Since, therefore, Claim 1 is not allowable (Article 52(1) EPC), the same is true for the main request as a whole.

2.2 The further independent Claims 5 and 10 will be discussed in the context of the third and second auxiliary requests where the corresponding Claims 4 and 9 are respectively decisive for the allowability of the requests.

3. *First auxiliary request*

Since the above conclusions regarding the allowability of the main request are independent of a judgment on Claim 10, the deletion of Claim 10 in accordance with the first auxiliary request does not render this request allowable.

4. *Second auxiliary request*

4.1 Claim 9

Claim 9 is directed to a cinematographic film bearing images recorded by the method of any one of Claims 1 to 4 (should correctly read "1 to 3"). The decisive question is in how far and whether at all a film bearing images recorded in accordance with Claim 1 is clearly distinguishable from a film bearing images recorded by other means.

Claim 9 does not define the character, state and appearance of the objects to be recorded (and is, in fact, principally unsuited for unambiguously doing this since a film bearing a structure necessarily only represents the image projected upon it and not the original from which this image may have been derived in one way or another).

Since the recorded objects are undefined, the specification that some of the images of the claimed film have been recorded by the method according to

Claim 1, can only mean that somewhere in some of the images there is a displacement between differently coloured superimposed partial images. Whether this displacement is visible on the film (e.g. against a coloured background) and, if visible, is distinctive for images made in accordance with the method of Claim 1, depends, however, on the character and, as the case may be, on the particular movement, of the recorded objects. Claim 9 thus does not have a clear meaning.

The Appellant argues that the image bearing film according to Claim 9 is recognizable by the fact that there is colour shifting at the edges of those parts which are in motion and no colour shifting at the motionless parts. However, the validity of this argument would require that, firstly, colour shifts at the edges are at all detectable which is not always the case, and, secondly, that there is an object scene which contains moving as well as motionless parts. However, Claim 9 is not limited to images of such objects.

The additional text in Claim 9 stating that those images of the film which are of objects moving relative to the film exhibit coloured fringes due to the displacement of the partial images thereof, does not contribute anything to rendering Claim 9 clear. Firstly, this text only relates to the case of moving objects and fails to provide any definitions for the case that there are no moving objects, and, secondly, even for moving objects, the statement of this text cannot be generally true since, as already mentioned above, coloured fringes will not always be visible, depending e.g. on the background of the object. Moreover, coloured fringes might have been introduced - accidentally or on purpose - in another way not related to the method of Claim 1.

Thus, Claim 9 does not provide a clear and unambiguous definition of the characteristics of the claimed film allowing to determine, for any given film, whether it is covered by the definitions of Claim 9 or not. Claim 9 of the second auxiliary request therefore lacks clarity in the sense of Article 84 EPC.

- 4.2 Since Claim 9 is not allowable, the same is true for the second auxiliary request as a whole.

The modified Claim 1 of this request will be dealt with below.

5. *Third auxiliary request*

- 5.1 In the set of claims according to the third auxiliary request, the independent claim directed to the film (Claim 9) has been deleted, so that no objections arise regarding the clarity of the claims (Article 84 EPC).

- 5.2 The amendments to Claim 1 concern the introduction of the two-part form (based on D1) and the introduction of further features relating to the use of colour film and to the interposition of different colour filters in the optical path between the object and the film.

The original disclosure of colour film directly follows from the fact that colour is recorded on and reproduced from each frame of the film (see page 21, second paragraph, of the original description, where also "integral tri-pack film" is mentioned). The feature relating to the colour filters in the optical path is disclosed in original Claim 5.

The feature "single lens system" of the new Claim 4 was contained in the original Claim 1.

The Board is therefore satisfied that the claims fulfil the requirements of Article 123(2) EPC.

5.3 Claim 1

5.3.1 Novelty

Since the subject-matter of Claim 1 according to the main request is novel (see point 2.1 above), the same is true for Claim 1 according to the third auxiliary request which contains all the features of Claim 1 according to the main request (as well as some additional features).

5.3.2 Inventive step

It was expressed in point 2.1.2 above that one of the reasons why the subject-matter of Claim 1 of the main request is not considered inventive is the fact that this Claim 1 leaves open how the overlaying of the partial images is performed. Claim 1 according to the third auxiliary request now contains the additional feature that the plurality of partial images of the object on each single frame are formed by exposing each frame of the film through different colour filters successively interposed in the optical path between the object and the film.

This feature clearly indicates that the overlaid recordings on each frame of the film are made in a way which is mentioned neither in D1 nor in D4 and could therefore not be suggested by any of these documents. Moreover, this way of superimposing the recorded partial images has the advantage of simultaneously simplifying reproduction of the images (which is achieved by the

superposition) and their recording (which is achieved by directly imaging the object on each frame of the film via successively interposed colour filters).

Direct recording through successively interposed colour filters is disclosed in a number of documents on file, i.e. H, D2 and D3.

H (which is also acknowledged in the present description) teaches the successive introduction of a plurality of colour filters in the direct optical path between the object and a photographic film during the exposure of a single frame picture. However, in the Board's view, a skilled person trying to improve the method according to D1 of recording and reproducing a stereoscopic movie film would have no obvious reason for combining this teaching with that of D1 since H has nothing to do with the purpose of producing stereoscopic partial images for creating a stereoscopic impression when viewed through filter spectacles, but only intends to create a special artistic effect by adding to a colour photograph "dashes or splashes" of colour which would not normally be present therein. There is also no intention of viewing these photographs through filter spectacles.

D2 describes colour encoding by means of a rotating disk of colour filters, and mentions applicability to stereoscopy. However, the different filters are not used so that through all of them the same frame of film is exposed, but each filter is associated with the exposure of another frame of the cinematographic film. A combination of this technique with that of D1 (be it with or without taking the teaching of D4 into account) would not lead to the method defined in Claim 1.

The teaching of D3 is similar to that of D2. It is, however, even farther away from the present subject-matter since applicability to stereoscopy is not mentioned.

For these reasons, the Board comes to the conclusion that the subject-matter of Claim 1 according to the third auxiliary request involves an inventive step in the sense of Article 56 EPC.

5.4 Claim 4

Claim 4 relates to a colour film movie camera for carrying out the method of Claim 1. The claimed camera has a single lens system and a mechanism for interposing a number of different colour filters in the optical path of the camera successively during the exposure of each frame of the film, so that the images formed by light passing through the filters are overlaid on each frame.

This movie camera thus has a number of different colour filters moving in synchronisation with the shutter and film advancing mechanism so that they are all interposed in the optical path of the camera during the exposure of each single frame, which features have been pointed out above (paragraph 5.3.2), with respect to the method, as defining an inventive difference over the prior art. A movie film camera having such a filter interposing mechanism is neither described in any one of the cited documents, nor is it rendered obvious by the knowledge from all of these documents taken together, taking into account the unexpected advantages achieved by this camera, ie stereoscopic effect requiring relatively simple means for recording as well as reproduction. The subject-matter of Claim 4 is thus also inventive in the sense of Article 56 EPC.

5.5 The independent Claims 1 and 4 according to the third auxiliary request are therefore allowable under Article 52(1) EPC.

Claims 2, 3, and 5 to 8 are allowable due to their respective dependence on Claims 1 and 4.

For these reasons, the third auxiliary request can be allowed.

6. The description needs adaptation to the new set of claims. Since the Board, at the oral proceedings, did not consider it expedient to require the Appellant to file an adapted description for each one of his various requests, the case is remitted to the Examining Division under Article 111(1) EPC for having the description adapted.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Examining Division with the order to grant a patent on the basis of the set of Claims 1 to 8 of the third auxiliary request, a description to be adapted and the drawings as originally filed.

The Registrar:

The Chairman:

P. Martorana

E. Turrini