

COMMISSIONER'S DECISION

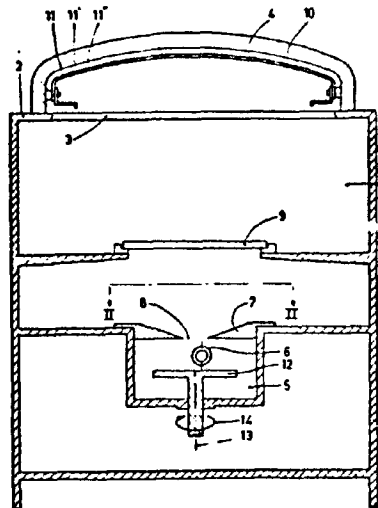
INOPERABLE; Dot Pattern For Cathode Ray Tubes

In order to form the desired color dot on a television tube face, the light source must rotate eccentrically with respect to the tube centre line. Claims which fail to specify this necessary requirement were refused.

Final Action: Affirmed

This decision deals with a request for review by the Commissioner of Patents of the Examiner's Final Action dated October 24, 1975, on application 114,647 (Class 95-36). The application was filed on June 2, 1971, in the name of Constant J.M. Geenen et al, and is entitled "Method And Apparatus For Producing Cathode Ray Tube Dot Patterns."

This invention relates to cathode-ray tubes used in color television, and more particularly to the manner in which color dots are formed on the screen. The screen comprises a mosaic of circular phosphor dots adapted to emit light of different colors when excited by an impinging electron beam. An optical projection of a pattern of circular apertures on a photosensitive layer is used to produce the phosphor dots. Figure 1 (below) illustrates the apparatus to make the dots.



In the Final Action the examiner rejected claims 1, 4, 5 and 6 as being inoperable. The examiner stated (in part):

Allowance of claims 1, 4, 5 and 6 is refused because said claims are inoperable. Also page 12 lines 8 and 21 to 25 and page 15 line 16 must be amended to remove references to concentric rotation which is an inoperable combination.

The object of the disclosure invention as stated on page 10 lines 15 to 20 and original page 12 lines 1 to 5 is to provide a method and a device with which both a rotationally symmetric macroscopic light distribution and a microscopic light distribution having a great light intensity gradient in the penumbral region are obtained.

In order to achieve this object of a large light intensity gradient across the penumbral region of each exposed dot the light source must rotate eccentrically with respect to an axis which is substantially perpendicular with respect to the centre of the support. The following disclosed references recite this feature: page 12 lines 25 to 29, page 13 lines 7 to 11, page 14 lines 21 to 27 and page 15 lines 1 to 8. Moreover all figures of structure show the light source as being eccentric with respect to the axis perpendicular to the support. It is therefore held that eccentric rotation of the light source is an essential feature of operable method and apparatus claims.

If applicant is relying on page 12, line 8 and 21 to 25 and page 15, line 16 which either infer or recite on-axis rotation which produces the macroscopic effect of a relatively large circular light source, it is respectfully submitted that the description on page 12 is insufficient to be operable. Both the word "about" on page 12, line 8 and the sentence on page 12 lines 21 to 25 are too broad in order to be operable to achieve the object defined above. Also the words "which intersects" on page 15, line 16 are inaccurate to achieve said object. It is held that on-axis rotation of an elongate light source will not produce an annular light source but will merely produce a uniform circular light source which will not achieve a large intensity gradient across the penumbral region of each dot exposure. In other words the small changing directivity achieved by using the eccentric rotation of the light source is essential to effect a large intensity gradient across the penumbral region during the total exposure of each dot; page 12 lines 27 to 29 and page 10 lines 3 to 6 and 15 to 20 further support such a stand. Pages 12 and 15 of the disclosure therefore must be amended.

Claims 1 and 4 and dependent claims 5 and 6 include rotation of a light source located either on-axis or off-axis and are therefore so broad as to include the inoperable embodiment of a mere uniform circular light source rather than the operable embodiment of an annular light source produced by an eccentric rotation of the light. Moreover, claim 1 appears to rely on Figures 3 and 4 which show only eccentric rotation. Likewise, claim 4 and dependent claims 5 and 6 appear to rely on the embodiment of Figure 5 which also shows only eccentric rotation. Claims 1 and 4 and dependent claims 5 and 6 are refused as being inoperable.

Applicant's response of August 28, 1975 which states on page 2, paragraph 2 that the most important object of the invention is to obtain rotation symmetrical light spots behind each aperture of the shadow mask, is insufficient. In spite of the fact that the last two examiner's reports stated that eccentric rotation was held to be an essential feature of operable claims, applicant's responses to these reports neither amended the claims to include this feature nor offered any argument refuting the examiner's position that this feature is essential to operable claims.

Claims 1 and 4 and dependent claims 5 and 6 are refused as being inoperable for not including the essential feature of eccentric rotation. An acceptable amendment would be to add a word such as "eccentric" before "rotation" (first occurrence) in claim 1 line 8 and a word such as "eccentrically" before "rotating" in claim 4 line 7.

In his response to the Final Action dated January 15, 1976, the applicant stated (in part):

Stated as the objects of the invention at page 5 of the disclosure is the achievement of rotation-symmetrical macroscopical and microscopical light distributions. According to the invention, also stated on page 5, the light source or "lamp rotates about an axis which is substantially perpendicular to the support". It is further stated that if "the longitudinal axis of the light source (considering an elongated source) and the axis of rotation intersect each other, a circular light source is effectively realized in this manner". It is submitted that it is obvious that, especially in the case of an elongated light source which cannot be considered punctiform, there will be both macroscopical and microscopical light distributions regardless of whether or not the physical center of the elongated light is at the axis of rotation. That the applicant did envisage concentric rotation of the light source becomes obvious when the text of the disclosure beginning at line 25 of page twelve is read where it states if the axis of the light source and the axis of rotation do not intersect an annular light source can be realized. It is submitted that whenever the highest concentration of light impinges on the screen at a point not coincident with the center of the screen a substantially annular light source is realized.

It is also evidence that no light source is perfect and a truly punctiform light source is not attainable, hence, only by coincidence will the maximum light concentration area on the radiated screen coincide with the axis of rotation.

It should now be clearly evidence that the applicant did consider concentric as well as eccentric rotation of the light source and even though the drawings are directed to eccentric rotation, which is the most difficult situation to understand, concentric rotation was also under consideration as evidenced by the disclosure referred to above as well as that mentioned by the examiner at pages 12 and 15.

The examiner is believed incorrect in asking for a restriction of the applicants' disclosure from what was originally disclosed since there is no authority for such a request. It is believed that the disclosure provides the description outlining the scope of the invention and only the claims can be restricted to cover no more than the inventor has disclosed, but not less - unless there is restrictive prior art.

Page 11, line 27 states the invention obviates the drawbacks of the prior art and these are

- (a) a conical element requires an unduly long exposure time;
- (b) an annular or non-annular light source of large diameter cannot be realized by means of a conical element.

Concentric rotation of a light source obviates the first drawback (a) while eccentric rotation solves the second problem. By following the instructions of the disclosure it is possible to achieve either or both types of rotational symmetry.

The question that the Board must consider is whether claims 1, 4, 5 and 6 are inoperative to give the desired result contemplated in the disclosure.

Claim 1 of the application reads:

A method for projecting light through a pattern of substantially circular apertures onto a photosensitive layer present on a support, said method comprising: locating a light source facing said pattern of apertures at the side remote from said photosensitive layer, directing an axis of greatest light intensity of said light source substantially to the centre of said photosensitive layer, and imposing a continuous rotation on said light source, said rotation having an axis of rotation which is substantially perpendicular to the centre of said photosensitive layer.

Since some of the claims are rejected as inoperable because they fail to produce the promised result, our initial consideration will be an assessment of the objectives of the invention as set out in the disclosure. In outlining these objectives, found in pages 2 to 17 (inclusive), the applicant has not clearly established the manner in which he proposes to solve the prior art problems. This was mentioned in the examiner's report of June 17, 1975, which stated that "the disclosure contains no clear object of invention." In response to this report the applicant replied that "the most important object of the present invention is, however, to obtain rotational-symmetrical light spots behind each aperture of the shadow mask, the microscopical light distributions."

Again in the Final Action the examiner reiterated his stand at paragraph 6, which reads:

The object of the disclosure [sic] invention as stated on page 10 lines 15 to 20 and original page 12 lines 1 to 5 is to provide a method and a device with which both a rotationally symmetric macroscopic light distribution and a microscopic light distribution having a great light intensity gradient in the penumbral region are obtained.

In order to achieve this object of a large light intensity gradient across the penumbral region of each exposed dot the light source must rotate eccentrically with respect to an axis which is substantially perpendicular with respect to the centre of the support.

In answer to this argument, the applicant's response to the Final Action was that "the objects of the invention [as stated] at page 5 of the disclosure is the achievement of rotational-symmetrical macroscopical and microscopical light distributions." The drawings only show an eccentric light arrangement and the detailed description appearing on pages 18 to 23 indicates how the applicant attains his desired result. Therefore, we conclude that the basic object of the invention is to achieve a light distribution that has a large light intensity gradient in the penumbral region of each dot exposed through each aperture of the mask by using an eccentric rotation of the light source.

In his argument in response to the Final Action the applicant stresses that he did envisage concentric rotation of the light source, and that "whenever the highest concentration of light impinges on the screen at a point not coincident with the centre of the screen a substantially annular light source is realized." We agree with the applicant on these points. However, concentric rotation does not produce the desired result, i.e. a large light intensity gradient in the penumbral region of each dot of exposure. This result will only be produced by eccentric rotation, which is the only embodiment shown in the drawings and the detailed description found in pages 18 to 23 of the disclosure. The statements of the objects of the invention (pages 2 to 17) do not indicate any other arrangement which will achieve the promised result.

In the last paragraph on page 2 of his response to the Final Action the applicant states:

Page 11, line 27 states the invention obviates the drawbacks of the prior art and these are:

- (a) a conical element requires an unduly long exposed time;
- (b) An annular or non-annular light source of large diameter cannot be realized by means of a conical element.

Concentric rotation of a light source obviates the first drawback (a) while eccentric rotation solves the second problem. (emphasis added)

This indicates there is agreement between the applicant and the stand taken by the examiner, since problem b is solved by eccentric rotation. Claims 2 and 3 which include the eccentric arrangement have been indicated allowable by the examiner.

Claims 1, 4, 5 and 6 are rejected as they may have rotation of the light source either on-axis or off-axis, and this includes the undesirable embodiment of a uniform circular light source rather than the operable embodiment of a light source using eccentric light rotation. In De Forest Phonofilm v Famous Players 1931 Ex. C.R. 27 @43 Maclean J states:

The specification must "clearly and fully describe the invention and its operation or use as contemplated by the inventor" and it must "set forth clearly the various steps in ... the method of constructing the machine, manufacture, etc." This was an obligation of the Common Law and it is now an obligation by Statute. If the specification uses language which when fairly read, is avoidably obscure or ambiguous, the patent is void, whether the defect be due to design, or to carelessness, or to want of skill; nothing can excuse the use of ambiguous language when simple language may easily be employed, due allowance of course, being made where the invention is difficult to explain and there is a resulting difficulty in the language. If the terms of a specification are so ambiguous that its proper construction must always remain a matter of doubt, it is the duty of the Court to declare the patent void.

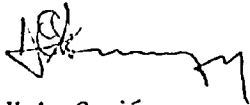
We note that the examiner has indicated that independent claims 1 and 4 would be made acceptable by the insertion of the eccentric feature, and we agree this would make them allowable.

The Board recommends that the decision taken in the Final Action to refuse claims 1, 4, 5 and 6 be affirmed.



G.A. Asher
Chairman
Patent Appeal Board

I concur with the finding of the Patent Appeal Board. Accordingly, I refuse to allow claims 1, 4, 5 and 6. The applicant has six months within which to appeal this decision under the provisions of Section 44 of the Patent Act.



J.H.A. Gariépy
Commissioner of Patents

Dated at Hull, Quebec
this 20th. day of October, 1976

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