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(71) Applicant: **Khalil, Saieb Muslih**
Al Hamra Mahala 622 Zukak 27, No. 16
Baghdad(IQ)

(72) Inventor: **Khalil, Saieb Muslih**
Al Hamra Mahala 622 Zukak 27, No. 16
Baghdad(IQ)

(74) Representative: **Vaufrouard, John Charles et al**
Ruffhead & Vaufrouard Maidstone Road
(STC Site) Foots Cray
Sidcup Kent DA14 5HT(GB)

(54) **Light pattern producing arrangements for advertisement etc.**

(57) An arrangement to produce a plurality of independent patterns of dark and light and shaded areas on a common painted area or equivalent by combining a means to sequence the colour of light projected on to the said painted area, between primary colours, and a picture coloured exclusively by the same primary colours plus white and black.

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LIGHT PATTERN PRODUCING ARRANGEMENTS FOR ADVERTISEMENT ETC.

This invention relates to arrangements for producing different (e.g. changing) light patterns, pictures or signs etc. for use for example in advertising (e.g. signs), entertainment (e.g. theatre), education (e.g. demonstrations), art and visible alarm and other light signal technology.

It is a well known phenomenon in colour science that an object of one primary colour (e.g. red, blue or green) would appear dark if it were illuminated with light of a different primary colour. A white object, however, would have the colour of the light falling upon it whereas a grey object would assume an intermediate shade of colour. It is not possible to distinguish red, for example, from black when both red and black are subjected to blue or green light. It would not be possible to distinguish red from white when both are subjected to red light alone.

The present invention utilises this known phenomenon of colour science to produce a plurality (two or three) of independent patterns to represent any pattern of areas, ornament, script or picture light and dark and any degrees of grey (the light can be of any primary colour as explained hereafter) by providing a means to project light sequentially from two (or three) primary colour light sources onto a picture painted exclusively in the same primary colours of the said light sources and white and black. Different independent patterns may thus be produced on the same background area.

The independence of each pattern as set out below may be utilised to produce the illusion of motion when patterns are alternated for example and an essential feature of the invention resides in producing two or three patterns (three independent patterns is the maximum number possible without loss of independence) of dark and light areas (varying degrees of grey may also be incorporated).

In carrying out the invention two patterns may first be designed. Then, using a substantially black background, the first pattern is painted on the background with blue paint and the second pattern is painted on with red paint. The common areas of the two patterns (i.e. the crossing areas where the two patterns overlap each other) are painted white. When this picture is subjected to blue light, exclusively, the first pattern applied to the background alone will show up light while the second pattern (painted red) will merge with the black background. If the light projected is changed to red, the second pattern alone will show up.

As an example only of this invention reference will now be made to the accompanying drawings.

In Figure 1 of the drawings there is shown a

first pattern 1 on the left and a second pattern 2 on the right. In order to produce different independent patterns based on the first and second patterns in response to the sequential projection of light of different primary colours on to a common painting, the first pattern may be painted in blue paint on to a black background 3 as shown in Figure 2 of the drawings.

The second pattern 2 may be painted in red paint on the same black background 3. The overlapping area 4 of the two patterns 1 and 2 is then painted in white paint.

The composite picture shown in Figure 12 includes two primary colours (i.e. blue and red) as well as white and black. Thus when the composite picture is illuminated with blue light the whole of the first pattern 1 only will show up in blue (the white and blue paint reflecting blue light) whereas when the composite picture is illuminated with red light the whole of the second pattern 2 will show up in red (the white and red paint reflecting red light). The two patterns 1 and 2 may therefore be displayed alternately in blue and red, respectively, to produce independent patterns by alternately subjecting the composite picture to the primary colours blue and red.

As will be appreciated a third pattern could be incorporated in the composite picture and painted in the other primary colour (i.e. green).

One example of utilising the principle of invention to give an illusion of movement is explained below:

On a black background a bird may be painted with a white body and two pairs of wings in different flight positions. One pair is painted red while the other is painted blue. If this picture is then subjected alternately to blue and red coloured light beams a flying bird would be seen with the colour of the bird, including wings, changing alternately from red to blue.

Degrees of grey can be freely included in the designed patterns and this may be achieved by having the appropriate areas painted with a mixture of either blue or red and grey paint to give the desired degrees of shade for each of the two primary, colour lights. For three independent pattern versions, utilising three primary colours it may be necessary to mix two colours (e.g. red and green with grey).

Some modifications may be included or added to the variable pattern producing arrangement within the same basic idea of producing independent patterns by primary colours. For example:-

a) the transition between independent patterns may be softened by making the light colour

change gradual rather than abrupt.

b) the independent patterns may be changed cyclically or just once.

c) the transition from one pattern to the other or next may be triggered by external stimulation such as sound or by manual control etc. 5

d) the trigger means may be subject to variable delays to produce different effects.

Although the present invention is intended primarily for advertisement purposes (e.g. signs) it will be understood that it is applicable to a wide range of uses including the theatre, cinema, education, art, alarms, indicating signs etc. 10

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Claims

1. An arrangement for producing a plurality of different independent patterns or equivalent of dark and light areas from a common painted area or equivalent, characterised by means for sequentially projecting light of different primary colours on to the said painted area which is coloured exclusively with the same primary colours plus white and black. 20 25

2. An arrangement as claimed in claim 1, characterised in that shaded areas are provided on the independent patterns by appropriately colouring the painted area with grey areas.

3. An arrangement as claimed in claim 1 or claim 2, characterised in that it produces two independent patterns by the use of two primary colours. 30

4. An arrangement as claimed in claim 1 or claim 2, characterised in that it produces three independent patterns by the use of three primary colours. 35

5. An arrangement as claimed in any of claims 1 to 4, characterised in that softer transition is provided between the said patterns by gradual change in light colour when such change occurs.

6. An arrangement as claimed in any of claims 1 to 5, characterised in that the patterns are repeated cyclically. 40

7. An arrangement as claimed in any preceding claim, characterised in that pattern change is stimulated by sound or some other controlled, programmed or incidental stimulator. 45

8. An arrangement as claimed in claim 7, characterised in that variable delay time(s) may occur before transition(s) from one pattern to another is triggered. 50

9. An arrangement substantially as hereinbefore described.

10. An arrangement substantially as hereinbefore described with reference to the accompanying drawings. 55

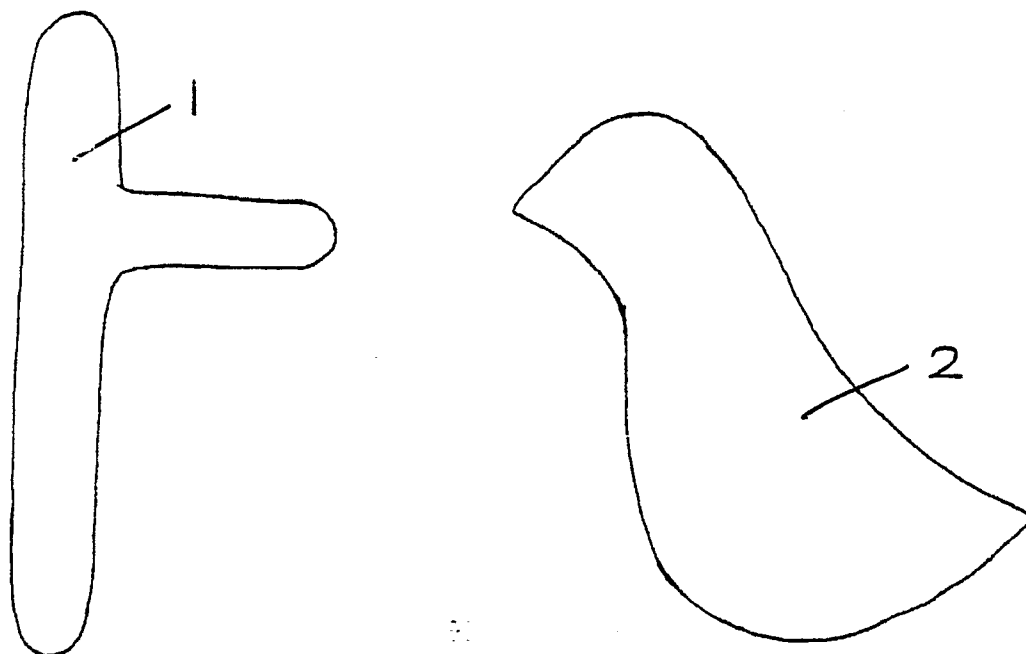


FIG. 1

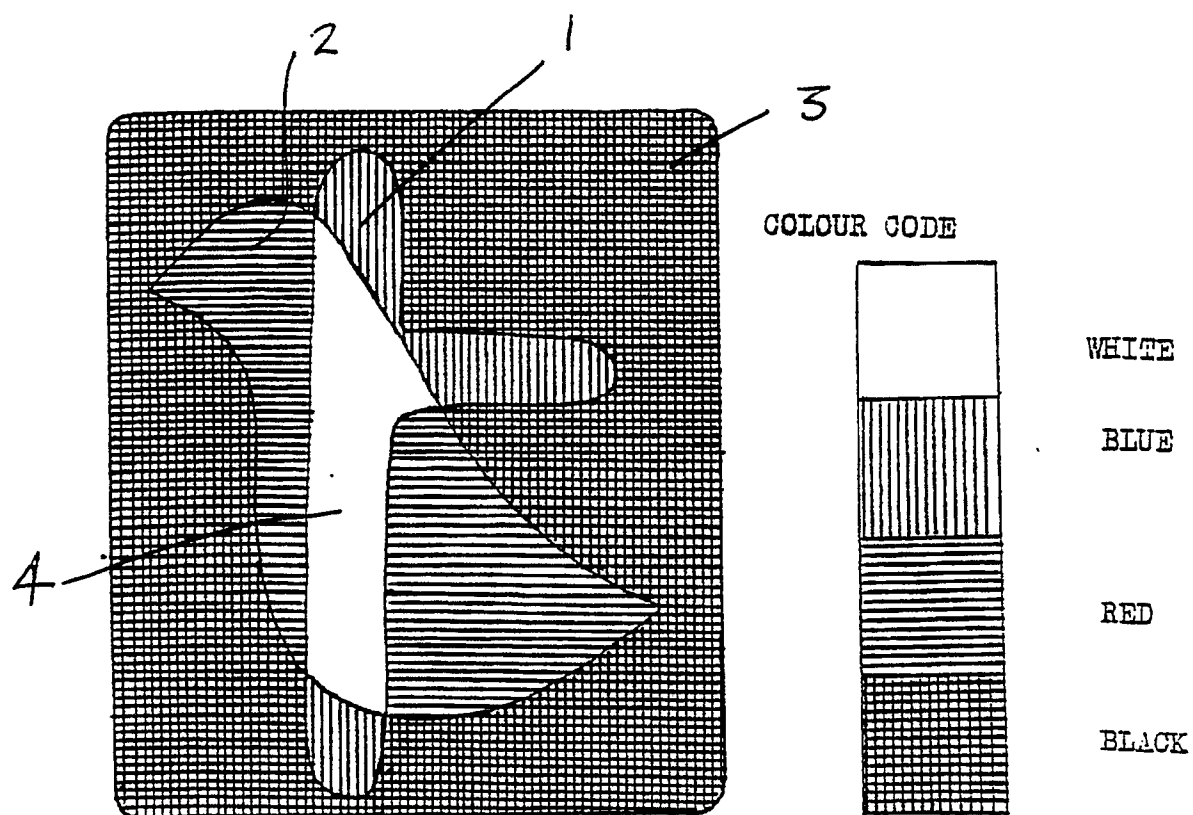


FIG. 2



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EUROPEAN SEARCH REPORT

Application Number

EP 89 30 9814

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-2 137 127 (J. BEST) * Page 1, right-hand column, line 49 - page 3, right-hand column, line 37; figures 1-5 *	1-6,8- 10	G 09 F 19/12
Y	---	7	
Y	FR-A-1 528 356 (BORG-WARNER CORP.) * Claim 1 *	7	
A	---		
	GB-A- 342 403 (J. PUNCH et al.) * Page 3, line 110 - page 4, line 7; figure 1 *	1-6,8- 10	

			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			G 09 F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 28-05-1990	Examiner GALLO G.G.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			