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— *of inventorship (Rule 4.17(iv)) for US only*

Published:
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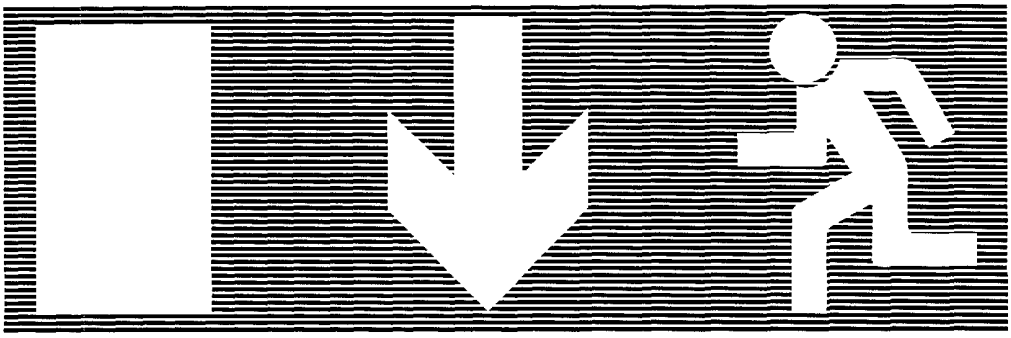
(54) Title: AFTERGLOWING SIGN



(57) Abstract: The present invention relates to an afterglowing sign printed with afterglowing pigments. The sign is provided at least partially with a screen print using opaque or transparent ink.

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AFTERGLOWING SIGN

Field of the Invention

The present invention relates to an afterglowing sign printed with afterglowing pigments.

Background Art

In the case of danger, alarm, fire, smoke formation, threats, etc., the presence of clearly visible signs in premises is extremely important, for example for indicating the nearest escape route or the location of fire extinguishing equipment. According to the colour requirements stipulated by the appropriate authority, the signs shall have one or more white, standardised symbols on red or green ground.

Some of the existing afterglowing safety signs are used, inter alia, to indicate and display escape routes and emergency exits and to indicate the location of fire extinguishing equipment. However, the afterglowing pigments used do not exist in the colour shades needed to obtain an optimal colour reproduction both in daylight and, with a coloured afterglow, in the dark. The solution to this problem has so far been to accept that these signs show afterglowing symbols only in the dark, in which case their ground colour has been perceived as black. Thus, the colour requirements for these afterglowing safety signs are met only in daylight and in lit places, since the afterglowing pigments available do not completely fulfil the requirements both in daylight/lit spaces and in the dark.

Summary of the Invention

It is therefore an object of the present invention to provide an afterglowing sign which affords an optimal colour reproduction both in daylight and, with a coloured afterglow, in the dark. This object is achieved by the afterglowing sign, which is printed with afterglowing

pigments, being provided at least partially with a screen printing using opaque or transparent ink.

In a preferred embodiment of the present invention, a contour recess is provided in the afterglowing ground surface along the contour of symbols printed on the sign in order to increase the contrast between the symbols and the background in the dark.

In a further preferred embodiment, the afterglowing pigments are white/yellowish-white, red and/or green.

In yet another embodiment, the screen printing is a line screen or a dot screen.

In one embodiment, the afterglowing pigments are printed as whole surfaces, in the form of screens, or incorporated into the material of the sign.

In one embodiment, the sign is made of metal, plastic or composite and, in another embodiment, it is made of a transparent or translucent material.

Brief Description of the Drawings

The invention will be described in more detail in the following by means of one preferred embodiment and with reference to the accompanying drawings, in which

Fig. 1 is a view of a sign according to the invention, a line screen being used when adding the supplementary opaque or, alternatively, transparent ink;

Fig. 2 is a view of a sign according to the invention, a dot screen being used when adding the supplementary opaque or, alternatively, transparent ink; and

Fig. 3 is a schematic view of a sign according to the invention, in which a contour recess is formed in the afterglowing ground surface along the contour of the symbols.

Description of a Preferred Embodiment

Fig. 1 and Fig. 2 illustrate two preferred signs according to the present invention. Fig. 1 shows an escape route sign, which, according to standard, has a green background and white symbols and border rule. Fig. 2 shows a sign for indicating the location of fire

extinguishing equipment, which, according to standard, has a red background and a white symbol and border rule.

The signs are made of aluminium or plastic and are silk screen printed. Any type of afterglowing pigments may be used; preferred but non-limiting pigments are $Mo.Al_2O_3$ doped with Eu as white/yellowish-white afterglowing pigment, (Ca0,8 Sr0,2)S - CaS as red afterglowing pigment, and $Mo.Al_2O_3$ doped with Eu plus fluorescent green pigment as green afterglowing pigment.

The choice of afterglowing pigment or afterglowing ink is not decisive. Thus, the technical effect is not dependent on the pigment or the ink used to obtain the afterglowing print, if the sign is provided with a screen of opaque or transparent ink.

First, the afterglowing pigments are printed on the sign either as whole surfaces or as a screen print. A contour recess along the contour of the symbols and the border rule, with a width of about 1.5-3 mm, may also be made (see Fig. 3) when printing the afterglowing ground surface in order to increase the contrast between the background and the symbols/border rule in the dark.

The surfaces printed with respectively red and green afterglowing pigments, i.e. the background, are supplemented by a line screen (Fig. 1) or, alternatively, a dot screen (Fig. 2) of opaque or transparent ink. Preferably, the screen is printed with respectively red and green opaque ink to supplement the red or green afterglowing background.

It will be appreciated that modifications of the preferred embodiments described above are possible within the scope of the invention, as defined by the appended claims. For example, the afterglowing sign does not have to be an escape route sign or a sign indicating the location of fire extinguishing equipment, but may be of some other type, for instance a sign used for advertising purposes.

CLAIMS

1. An afterglowing sign printed with afterglowing pigments, c h a r a c t e r i s e d in that the sign is provided at least partially with a screen print using opaque or transparent ink.

2. An afterglowing sign according to claim 1, wherein a contour recess is formed in the afterglowing ground surface along the contour of symbols printed on the sign.

3. An afterglowing sign according to claim 1 or 2, wherein the afterglowing pigments are white/yellowish-white, red and/or green.

4. An afterglowing sign according to any one of claims 1-3, wherein the screen printing is of line screen or dot screen type.

5. An afterglowing sign according to any one of claims 1-4, wherein the afterglowing pigments are printed as whole surfaces, in the form of screens, or are incorporated into the material of the sign.

6. An afterglowing sign according to any one of claims 1-5, wherein the sign is made of metal, plastic or composite.

7. An afterglowing sign according to any one of claims 1-5, wherein the sign is made of a transparent or translucent material.

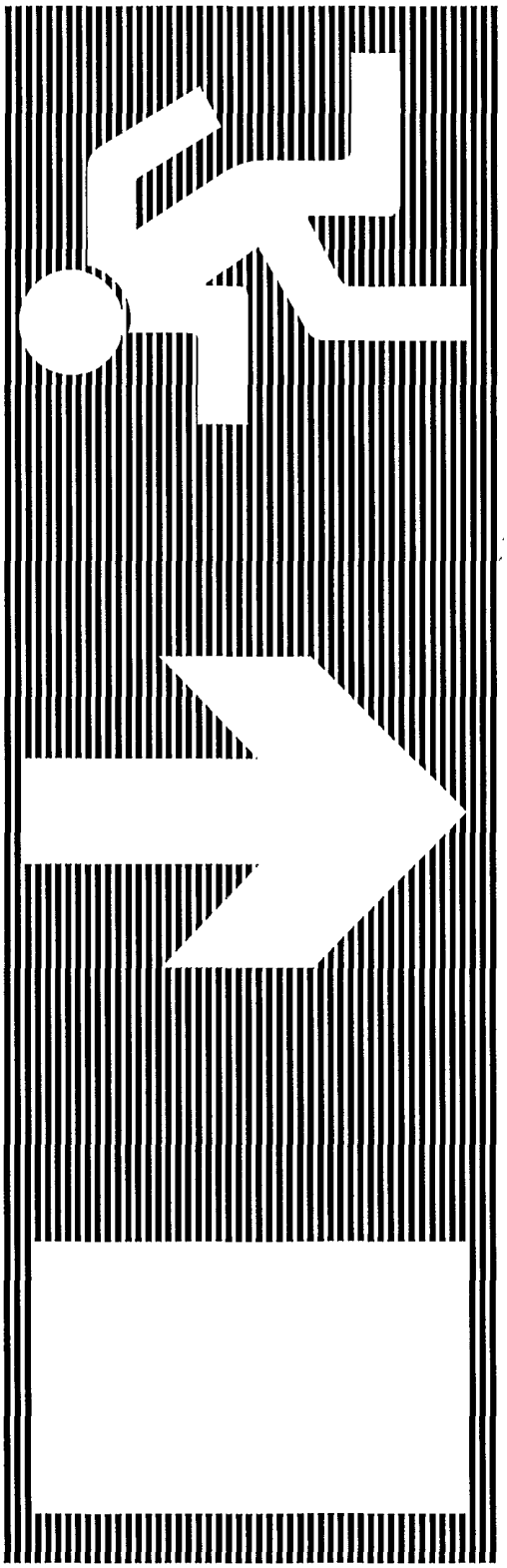

Fig. 1

Fig. 2

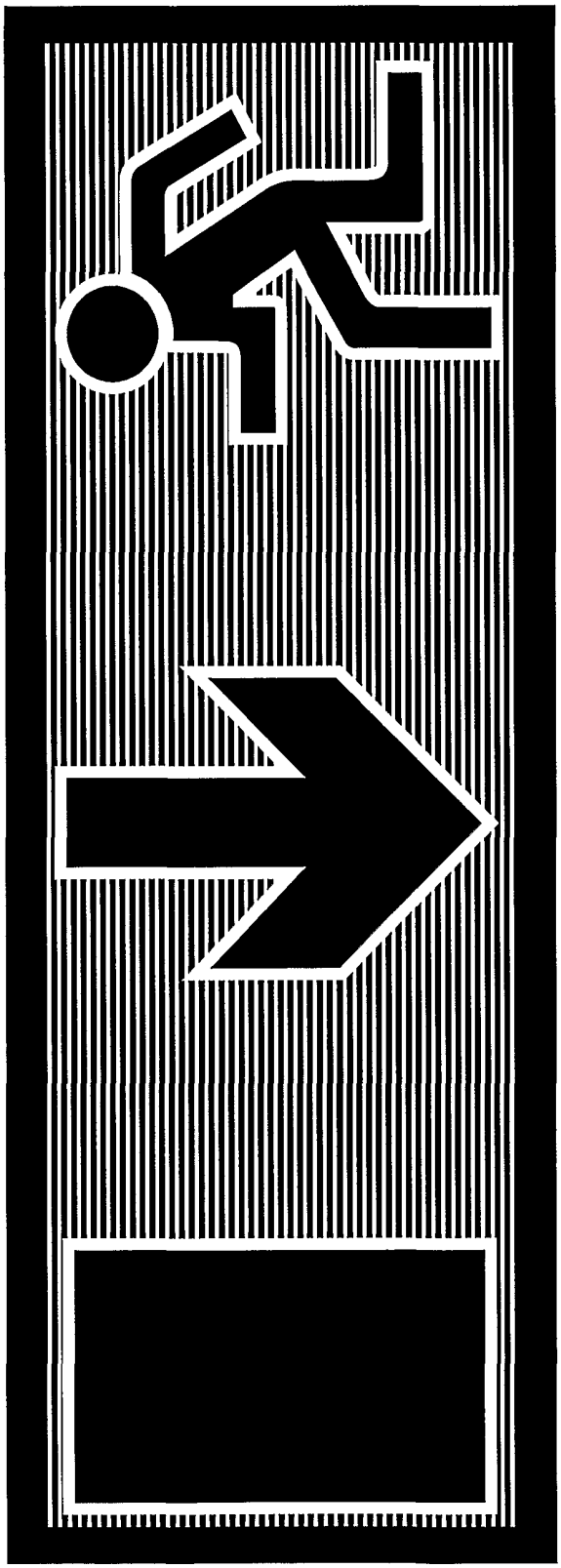

Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G09F 13/20
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G09F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2034503 A (R. BAHRTON), 4 June 1980 (04.06.80) --	1-7
A	GB 2109606 A (GALVNA DIRECTSIA PRI TVORCHESKI FOND NA NAYUZA NA BULGARSKITE HUDOJNITSI (SHB)), 2 June 1983 (02.06.83) --	1-7
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A	DE 29610580 U1 (RIEMER, W.), 26 Sept 1996 (26.09.96) --	1-7

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

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"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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Date of the actual completion of the international search	Date of mailing of the international search report
14 May 2002	13 -06- 2002
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Åke Olofsson / MRo Telephone No. +46 8 782 25 00

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 9712646 A1 (P.E.R. FLUCHT- UND RETTUNGSLEITSYSTEME GMBH), 10 April 1997 (10.04.97) -- --------	1-7

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
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DE 29502699 U1	25/07/96	NONE	
DE 29610580 U1	26/09/96	NONE	
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