(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 039 434 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
27.09.2000 Bulletin 2000/39

(51) Int. Cl.[7]: **G09F 13/22**, G09F 19/16, G09F 13/12

(21) Application number: **00106404.7**

(22) Date of filing: **24.03.2000**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **25.03.1999 KR 1036699**

(71) Applicant: **Song, Dong-Ho**
Kangdong-Gu, Seoul (KR)

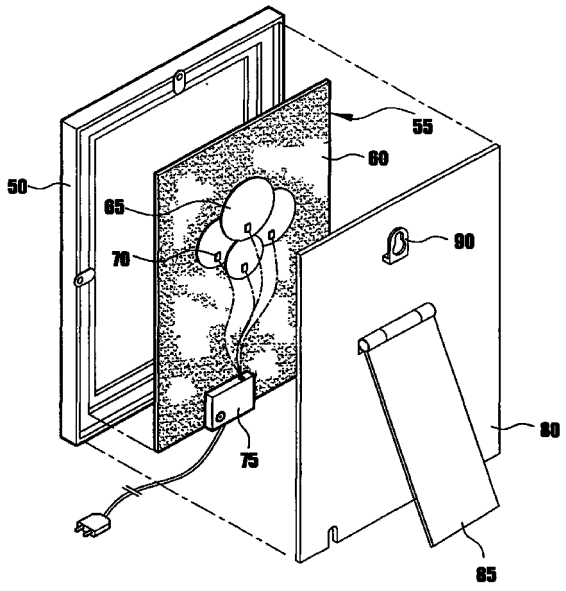
(72) Inventor: **Jang, Jae-Hyung**
Songpa-Gu, Seoul (KR)

(74) Representative:
Petraz, Gilberto Luigi et al
GLP S.r.l.
Piazzale Cavedalis 6/2
33100 Udine (IT)

(54) A combination reflecting mirror and ornament having an ornamental effect of moving pictures

(57) The combination reflecting mirror and ornament uses an electric luminous(EL) light as an illuminating device to thin it, and the EL light is divided into plural regions to achieve an effect of moving pictures. The combination reflecting mirror and ornament comprises a main body in a certain shape; a reflecting means disposed on the front of the main body, and having on the rear side thereof a reflector layer of a predetermined penetration rate through a vacuum evaporation of aluminum; Electric luminous (EL) lights divided into certain shapes and attached on the rear side of the reflecting mirror, the divided EL lights each having a certain shapes and colors and illuminating according to an electric power supply; and a control box for supplying the electric power to the respective divided EL lights. The control box sequentially or simultaneously supplies the electric power to the respective divided EL lights, and partially turning-on and turning-off with respect to the entire shape cause an effect of moving pictures according to figures and colors formed on the EL lights. Further, by using the EL light as an illuminating device, it is possible to thin the product compared with a conventional ornament and to use the product as an ornament in the exterior as well as in the interior.

FIG. 2



EP 1 039 434 A1

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a combination reflecting mirror and ornament, and more particularly to a combination reflecting mirror and ornament capable of obtaining an ornamental effect of moving pictures by dividing electric luminous (EL) light and attaching the divided EL lights on the rear side of a reflecting mirror as illumination sources.

2. Description of the Prior Art

[0002] Recently, diverse kinds of advertising stuff in the places such as subway and so on where a lot of people use. Most of such advertising stuff is shaped in a rectangular box as tall as ordinary people and attached on a wall, on the front surface of which an advertisement is attached. Further, illumination sources such as fluorescent lights are mounted inside the box for an advertisement on the box to be conspicuously seen by people.

[0003] However, the box for an advertisement as stated above just plays a role for showing only the advertisement, and concerns of passers-by for it gets away more and more with a flow of time, to thereby lower the effect. Accordingly, in recent years, in order to solve the above problem, facilities for having a function of a signboard while showing an advertisement as well as playing a role of a reflecting mirror appear.

[0004] FIG. 1 is a perspective view for showing a conventional combination reflecting mirror and ornament. As shown in FIG. 1, illumination parts 25a and 25b equipped with illuminating lights 23a and 23b which are turned on and off by an electric power supply 20 are mounted on opposite sides inside a main body 10 the front cover of which is now opened. Blocking plates 25a and 25b which block penetration of light are mounted on the front portions of the illumination parts 25a and 25b. A reflecting mirror 35 are disposed between the blocking plates 27a and 27b, and the back surface of the reflecting minor 35 is applied with a reflector layer 30 and an ornamental print layer 33. The ornamental print layer 33 is formed with an application of a general luminous paint, and the reflector layer 30 is formed to have minute gaps with an application of aluminum on one side of the reflecting minor 35 in a high vacuum state, to thereby penetrate only 30% of light.

[0005] The conventional combination reflecting mirror and ornament having a structure as stated above is operated as below.

[0006] That is, since the interior luminous intensity becomes relatively lowered than the exterior when the illuminating lights 23a and 23b inside the main body 10 are turned oft light from the exterior is firstly irradiated to the reflecting minor 35. At this time, about 70% of the entire light is reflected by the reflector layer 30 applied on the rear surface of the reflecting mirror 35, and about 30% of the light is penetrated into the interior of the main body 10 through the minute gaps. The light penetrated as stated above is secondly so reflected that an amount of light penetrated through the minute gaps to the exterior corresponds to 30% of the reflected amount of light. Accordingly, an effect of a reflecting mirror is obtained since a reflecting rate of light reaches to an extent of 91% so that the interior is not seen. Actually, since an amount to be penetrated to the exterior out of the secondly reflected light becomes much less due to an influence of a light dispersion, the reflecting rate becomes more than 91%.

[0007] Further, since an interior luminous intensity is much higher than an exterior luminous intensity in case that the illuminating lights 23a and 23b inside the main body 10 are turned on, light irradiated from the interior penetrates the ornamental print layer 33 so that 70% of the entire light is reflected and 30% of the same penetrates the reflecting mirror 35 through the minute gaps. Due to the penetrated light, ornaments formed on the ornamental print layer 33 are recognized by users.

[0008] Accordingly, the reflecting mirror as stated above may have a function as a reflecting mirror itself in a turn-off of an electric power and a function as an ornament in a turn-on of an electric power.

[0009] However, the box should be in a rectangular shape since bar-shaped luminous lights are used in the interior as well as there exists a limitation in thinning the thickness of the box. Accordingly, it is difficult for the box to be used as an interior ornament.

[0010] Further, there exists a problem for people to be easily fed with repeated and monotonous display of all ornaments printed on a reflecting mirror or an ornamental print layer.

SUMMARY OF THE INVENTION

[0011] Accordingly, it is an object of the present invention to provide a combination reflecting mirror and ornament capable of giving a movement effect when viewing ornaments entirely by simultaneously or sequentially turning on and off a portion or all of the ornaments.

[0012] It is an object of the present invention to provide a combination reflecting mirror and ornament having an ornamental effect of moving pictures, capable of thinning an entire thickness as well as enhancing ornamental aesthetic feeling by using EL lights as illuminating devices.

[0013] In order to achieve the above object, a combination reflecting mirror and ornament having an ornamental effect of moving pictures comprises a main body in a certain shape; a reflecting means disposed on the front of the main body, and having on the rear side thereof a reflector layer of a predetermined penetration

rate through a vacuum evaporation of aluminum; electric luminous (EL) lights divided into certain shapes and attached on the rear side of the reflecting mirror, the divided EL lights each having a certain shapes and colors and illuminating according to an electric power supply; and a control box for supplying the electric power to the respective divided EL lights.

[0014] Further, the control box sequentially or simultaneously supplys an electric power to the divided EL lights, so that an effect is expected that the EL lights having certain figures and colors are animated.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The above objects and other advantages of the present invention will become more apparent by describing in detail a preferred embodiment thereof with reference to the attached drawings, in which:

FIG. 1 is an exploded perspective view for showing a conventional combination reflecting mirror and ornament;

FIG. 2 is an exploded perspective view for showing a combination reflecting mirror and ornament according to an embodiment of the present invention;

FIG. 3 is a view for describing operations of the combination mirror and ornament of FIG. 1 when an electric power is not supplied from the control box;

FIG. 4 is a view for describing operations of the combination mirror and ornament of FIG. 1 when an electric power is supplied from the control box; and

FIG. 5 is a view for showing an illustrative picture formed on an EL light.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0016] Hereinafter, a combination reflecting mirror and ornament having an ornamental effect of moving pictures according to an embodiment of the present invention will be described with reference to the accompanying drawings.

[0017] FIG. 2 is an exploded perspective view for showing a combination reflecting mirror and ornament according to an embodiment of the present invention. The combination reflecting mirror and ornament shown in FIG. 2 is an embodiment of the present invention applied to a frame. As shown in FIG. 2, a reference numeral 50 denotes a main body, 55 denotes a reflecting mirror mounted on the rear side of the main body 50, 60 denotes a reflector layer formed with vacuum-evaporation of aluminum and so on for light to be penetrated at a certain rate to the rear side of the reflecting mirror 50, 65 denotes EL lights each of which plays a role of a display device which is illuminated when an electric power is supplied, 70 denotes electrodes connecting the electric power to the EL lights, 75 denotes a control box for controlling the electric power to the electrodes, and 80 denotes a rear panel of the frame.

[0018] The EL lights used as display devices as shown above has a small electric power consumption so that they are used as a substitute of a liquid display device. Particulary, the EL light is used as a display device for a pager, a watch, a mobile phone, and so on, and they have physical properties of a capacitance of 250pF/cm^2, electric current of 0.20mA/cm^2 under the rated voltage of 220V, and a heat-resistant temperature of -20°C ~ 60°C.

[0019] The combination reflecting mirror and ornament having the above structure, as shown in FIG. 3, is stood like a picture frame on a flat place such as a desk by using a support 85. Further, after folding the support 85, the combination reflecting mirror and ornament may be hung on a wall by using a hook groove 90.

[0020] Examples in accordance with uses of such ornament will be described in detail as below.

[0021] In case that no electric power is supplied to the above ornament, as shown in the enlarged view of (A) of FIG. 3, since the interior luminous intensity is lower than the exterior luminous intensity in view of the main box, if light from the exterior is firstly irradiated to the reflecting mirror 55, about 70% of the entire light is reflected from the reflector layer 60. The remaining 30% of the entire light reaches the EL lights 65 through the minute gaps, but the EL lights play a role of a reflecting layer when in a state that an electric power is not supplied so that the light is reflected. Accordingly, as mentioned in connection with the Prior Art, a reflected rate to a user is more than 90% so that the EL lights plays a role of reflecting mirrors.

[0022] Conversely, in case that an electric power is supplied, as shown in the enlarged view of (B) of FIG. 4, if the control box 75 is operated, an electric power is supplied to the EL lights 65 so that the EL light 65 are turned on. At this time, since the luminous intensity of the EL lights 65 is higher than the luminous intensity of the exterior of the main body 50, light illuminated with certain figures and colors penetrates the reflecting mirror 55 through the minute gaps formed on the reflector layer 60. Accordingly, since a user can view contents established on the EL lights 65 appearing on the front surface of the main body 50 so that the combination reflecting mirror and ornament plays a role of an ornament. At this time, the control box 75 is connected with the respective electrodes 70 formed on the EL lights. Accordingly, the control box 75 performs operations of sequentially or at a certain time interval turning on and off respective EL lights 65. Further, the control box 75 can control an electric power intensity and the time when an electric power is supplied to the divided respective regions of the EL lights 65. Further, it is possible that a sound device is included in the control box 75 to produce a predetermined sound at the time when

an electric power is supplied. Furthermore, products which are already widely employed is used as such sound device.

[0023] The ornamental effect of moving pictures using the EL lights 65 as mentioned above will be described with reference to FIG. 5.

[0024] For example, the EL lights are divided into plural regions, reference numerals A to F as shown in FIG. 5, and certain colors and figures different from each other are formed on the divided regions A to F. If turning-on and turning-off of an electric power with respect to the divided regions are repeated at a time interval, the entire figures look like being in a movement.

[0025] As stated above, the present invention may be basically used both as an ornament and as a reflecting mirror according to turning-on and turning-off of illuminating devices, the ornament is composed of divided EL lights to be sequentially or simultaneously turned on and off with respect to the respective divided EL lights, so that an ornamental effect of moving pictures as if ornaments are moving can be obtained. Accordingly, there is an effect that arouses user's interest. Further, using EL lights instead of bar-type illuminating lights used as luminous devices enables the main body to become slim, so that an effect can be expected that the combination reflecting minor and ornament can be manufactured in various shapes without any restriction to establishment places.

[0026] Although the preferred embodiment of the present invention has been described, it will be understood by those skilled in the art that the present invention should not be limited to the described preferred embodiment, but various changes and modifications can be made within the spirit and scope of the present invention as defined by the appended claims.

Claims

1. A combination reflecting mirror and ornament, comprising:

   a main body (50);
   a reflecting means (55) disposed on the front of the main body (50), and having on the rear side thereof a reflector layer (60) of a predetermined penetration rate through a vacuum evaporation of aluminum;
   electric luminous (EL) lights (65) divided into predetermined shapes and attached on the rear side of the relflecting means (55), the divided EL lights (65) each having a predetermined shape and colors and illuminating according to an electric power supply; and
   a control box (75) for supplying the electric power to the respective divided EL lights (65).

2. The combination reflecting mirror and ornament as claimed in claim 1, wherein the reflector layer (60) has a penetration rate of about 30%.

3. The combination reflecting mirror and ornament as claimed in claim 1, wherein the control box (75) sequentially or simultaneously supplies the electric power to the respective divided EL lights (65).

4. The combination reflecting mirror and ornament as claimed in claim 1, wherein the combination reflecting mirror and ornament is a reflecting mirror (55) while an electric power is not supplied from the control box (75).

FIG. 1

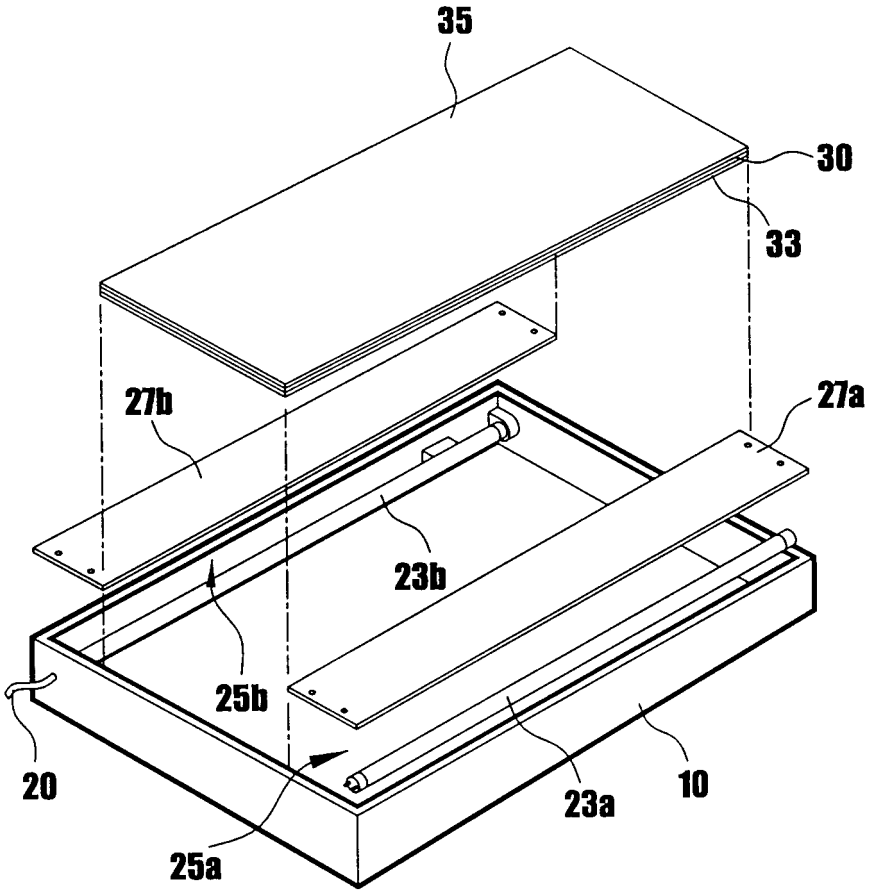


FIG. 2

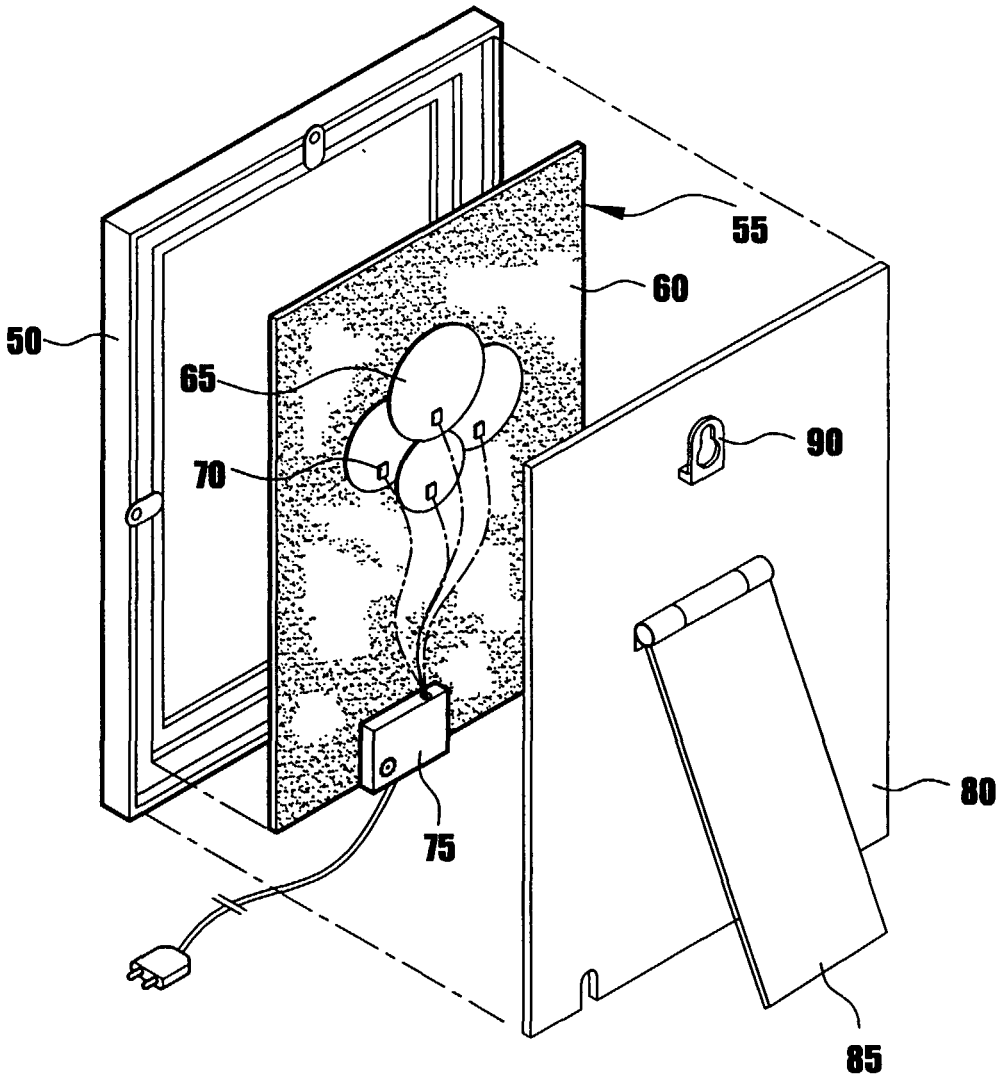


FIG. 3

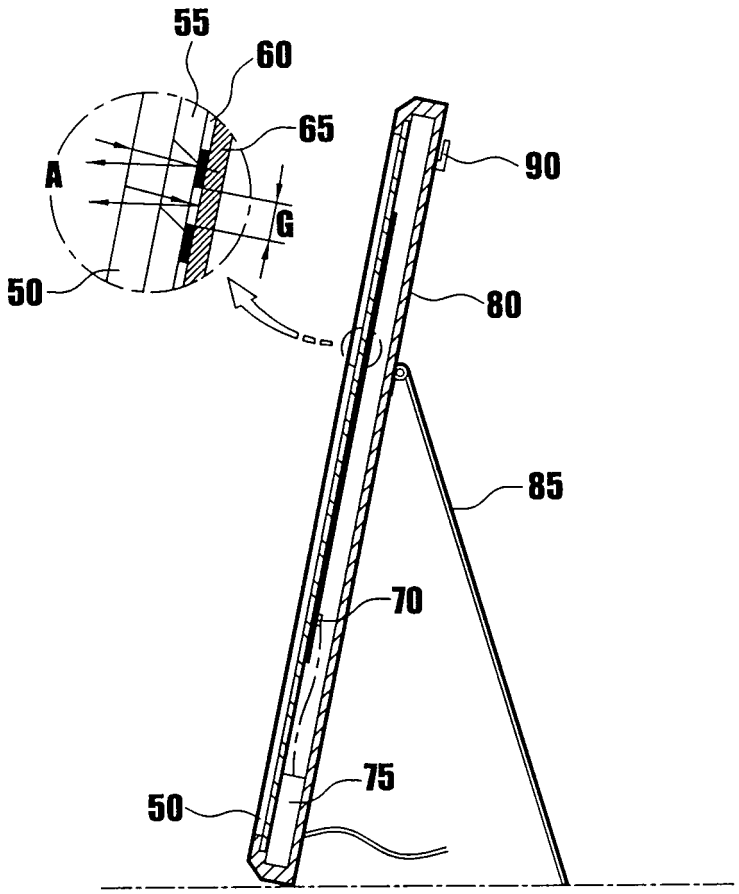


FIG. 4

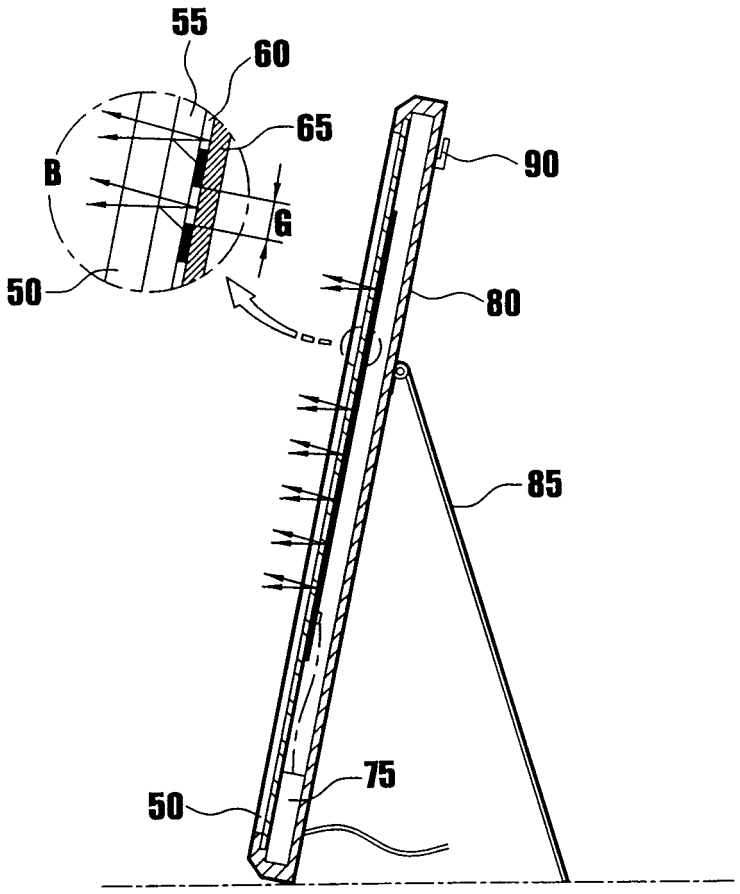
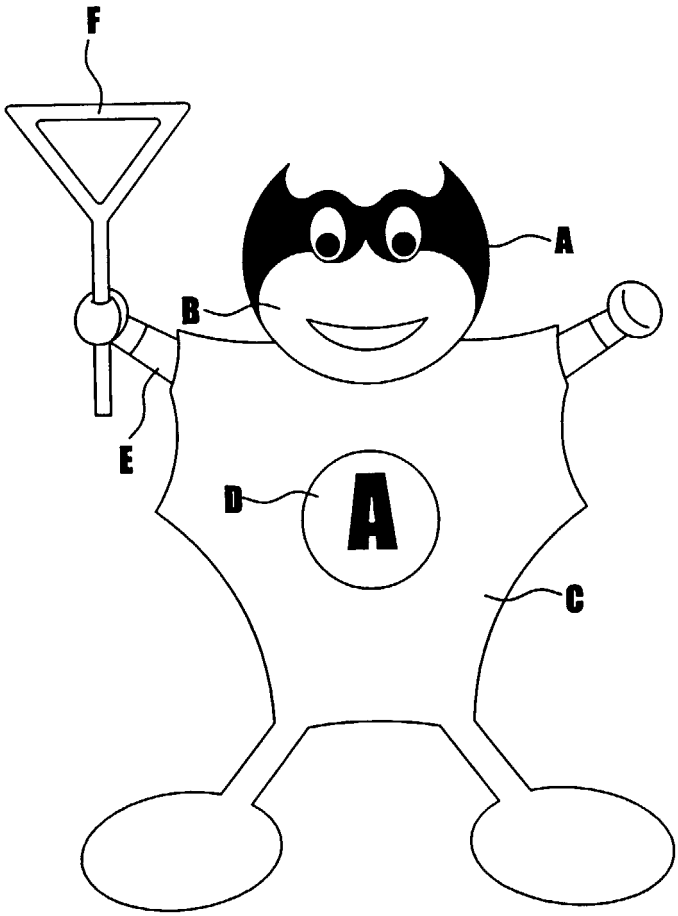


FIG. 5



European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 10 6404

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.7)
X	US 4 499 451 A (HARA KUNIHIKO ET AL) 12 February 1985 (1985-02-12) * the whole document *	1-4	G09F13/22 G09F19/16 G09F13/12
X	US 4 202 607 A (MATSUISHI MASANORI ET AL) 13 May 1980 (1980-05-13) * abstract; claims; figures *	1-4	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

G09F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	23 May 2000	Gallo, 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

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 00 10 6404

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

23-05-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4499451 A	12-02-1985	JP 57165803 A	13-10-1982
		JP 1611868 C	30-07-1991
		JP 2027675 B	19-06-1990
		JP 57171385 A	21-10-1982
		GB 2099628 A,B	08-12-1982
US 4202607 A	13-05-1980	JP 51107089 A	22-09-1976
		JP 1186470 C	20-01-1984
		JP 51120697 A	22-10-1976
		JP 58020432 B	22-04-1983
		JP 51137557 A	27-11-1976
		DE 2611339 A	07-10-1976
		DE 2660083 C	31-03-1983

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82