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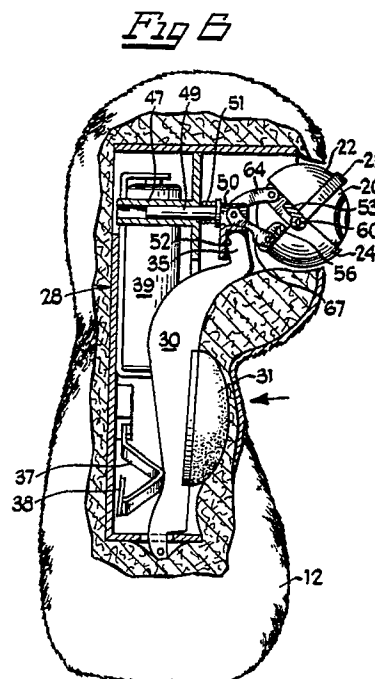
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54 Toy character with lighted eyes and mechanically openable eyelids.

57 A soft plush animal (10) with eyes (20) that light up has an actuator (30, 31) in the body (12) of the animal for opening and closing the eyelids (22, 24) in response to pressure on the actuator exerted through the body. Preferably a pair of pivoting upper (22) and lower (24) eyelids for each eye are biased together to close the eyes. Pressure on the actuator inside the body pivots the lids open against the bias. As the eyelids begin to open, a battery (39) powered light source (40) turns on to backlight the eyes.



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TOY CHARACTER WITH LIGHTED EYES AND MECHANICALLY OPENABLE EYELIDS

This invention relates to soft toy characters or dolls with lighted features and more particularly to such characters or dolls with lighted eye features.

Plush or soft characters and dolls are popular play things particularly for younger children. Prior art characters and dolls have been provided with a light up feature to make them particularly adapted for bedtime play. Examples of such prior art characters with light-up features are the Playskool "GLOWORM" which is disclosed in Fogarty et al., U.S. Patent 4,464,861 issued August 4, 1984 and the Lewis Galoob "DOZZZY" Doll. Other prior art having a light-up facial feature is shown in Fisher United States Patent 928,744 issued July 20, 1909, Patane United States Patent 2,939,917 issued June 6, 1957, Kinberg et al. United States Patent 4,734,074 issued March 29, 1988 and United Kingdom Patent 1,166,410, the specification of which was published on October 8, 1969. In Kinberg et al. Patent 4,734,074, Fogarty et al. Patent 4,464,861, Patane Patent 2,939,917, and United Kingdom Patent 1,116,410, pressure upon the body of the character or doll, resulting from squeezing of the body, actuates a battery powered light disposed within a hollow head having light transmitting facial portions including eyes. Fisher Patent 928,744 has a light up nose and mouth that moves. Each of Italian Patent 628,906 granted November 29, 1961 and United Kingdom Patent 1218 of 1891 show mechanisms for closing a doll's eyelids. The "DOZZZY" Doll had back lit facial features, including the eyes, that changed in apparent synchronization with speech emanating from an internal, electrically powered, audio source. However, there remains a need for a plush or soft character or doll having eyes that will not only light up but will also open and close in response to pressure exerted by a child.

The invention provides a toy character or doll comprising in combination: a compressible body; a head mounted atop the body; a pair of eyes capable of transmitting light mounted in the head; a selectively energizeable light source disposed behind the eyes; at least one movable lid member carried by the head for each of the eyes for selectively covering or exposing the eyes; means for mechanically moving the at least one lid member for each of the eyes for covering and exposing the eyes; the mechanical means including an actuator within the body; the actuator being movable in response to pressure exerted upon a portion of the compressible body; and the mechanical means including means biasing the at least one movable lid member for each of the eyes to cover the eyes and also biasing the actuator.

In the accompanying drawings:

FIG. 1 is a perspective view of toy plush bear embodying the present invention;

FIG. 2 is another perspective view of the same toy plush bear showing the eyelids open;

FIG. 3 is an enlarged scale, front elevational view partly in section along line 3-3 of FIG. 1;

FIG. 4 is a sectional view taken generally along line 4-4 of FIG. 3;

FIG. 5 is a sectional view taken generally along line 5-5 of FIG. 3;

FIG. 6 is a side elevational view partly in section showing the abdomen of the bear pushed in and the eyelids open;

FIG. 7 is an enlarged scale, exploded perspective view of part of the eyelid mechanism; and

FIG. 8 is an enlarged scale, fragmentary sectional view taken generally vertically through the center of the eyelids.

Referring now to the drawings in which like parts are designated by like reference numerals throughout the several views, there is shown in FIG. 1 a toy plush bear 10 having a body 12, pair of arms 13, a pair of legs 14 and a head 15. Bear 10, or more particularly head 15 has a pair of ears 17, a nose 18, a sewn mouth 19 and a pair of eyes 20 which are shown in FIG. 2. In FIG. 1, eyes 20 are covered by a pair of biased shut upper eyelids 22, which include rims 23, and lower eyelids 24. Rim 23 on each upper eyelid 22 slightly overlaps each respective lower eyelid 24 when the eyelids are in the closed position as is best illustrated in FIGS. 3 and 4. When pressure is exerted upon the abdominal area of body 12, such as by a hand 25 grasping toy plush bear as illustrated in FIG. 2, the normally biased shut eyelids 22 and 24 are pivoted to open and expose eyes 20 while simultaneously actuating a battery powered light source disposed behind each of the eyes. A pair of eyelids operating in combination for each eye is preferred because less movement of an actuator, and hence less pressure, is required which facilitates operation by a small child.

Toy bear 10 is stuffed with any conventional filler material 26. Within stuffing material 26 is a housing 28 which has an open lower front portion. Mounted in housing 28 for movement in a generally vertically oriented plane between the front and back of bear 10 is an actuator lever 30. Carried on the front of actuator lever 30 is a pad 31 which is conveniently circular when viewed from the front as in FIG. 3 and generally hemispherical when viewed from the side as in FIGS. 4 and 6. The function of pad 31 is to provide a broader surface for application of pressure than the edge of ac-

tuator lever 30. Preferably, pad 31 is made of a somewhat resilient material such as rubber or an expanded plastic foam which is more dense than the stuffing material 26 but still does not have the hard sharp feel of a dense plastic or metal.

Actuator lever 30, or more particularly its lower end 32, extends out through a slot 33 in housing 28. A transverse pin 34 is secured in projecting end 32 to prevent actuator lever 30 from moving up and out of housing 28. The actuator lever also has an upper end 35 that is best shown in FIGS. 6 and 7. Disposed closely behind actuator lever 30 are a pair of normally biased open switch contacts 37 and 38. Upon actuator lever 30 being pushed back, it urges switch contact 37 into electrical energy transmitting engagement with switch contact 38 as is illustrated in FIG. 6. Switch contacts 37 and 38 are connected through wiring (not shown) to batteries 39 and light bulbs 40 which are shown in FIG. 5. Batteries 39 are mounted in the upper rear portion of housing 28 in conventional clips 41.

Depending from the top of housing 28 is a wall 43 that spans across the upper portion of housing 28. There is a slot 44 in a depending portion of transverse wall 43 which accommodates actuator lever 30 and its back and forth movement. Eyes 20, or more particularly a sleeve 45 extending rearwardly from each of eyes 20, is mounted on transverse wall 43. Each of light bulbs 40 are received in a respective sleeve 45.

Also mounted on transverse wall 43 is a sleeve 47 that extends rearwardly, that is in the opposite direction from sleeves 45. Sleeve 47 receives a reciprocating piston rod 49 which has a forward piston head 50. Disposed around piston rod 49, behind piston head 50 and in front of transverse wall 43 is a compression coil spring 51 which biases piston rod 49 and piston head 50 to a forwardmost position as illustrated in FIG. 4. Piston head 50 has a pocket 52 in which upper end 35 of actuator 30 is received. Thus, it will be appreciated that the bias of compression spring 51 urging piston head 50 forwardly will also urge actuator 30 forwardly to the position illustrated in FIG. 4.

Each of the pair of upper eyelids 22 is connected by a central bridge member 53 from which a tab 54 extends upwardly. In a similar manner, each of the pair of lower eyelids 24 is connected by a central bridge 56 from which tab 57 depends. Upper eyelids 22 and lower eyelids 24 are mounted for pivotal movement about a common pin 60 that passes through apertures in lower eyelids 24 and an aperture extending through a portion of bridge 53 between each of the two lower eyelids 24. Each end of pin 60 is mounted in a respective eye 20. At the outside of each eye 20 there is a pivot pin 61. Both pins 61 are coaxial with pin 60 and extend from the eye in which they are moun-

ted through apertures in respective eyelids 22 and 24.

A curved link 64 is connected by suitable threaded fasteners or rivets 65 adjacent each of its ends. One end of link 64 is connected to tab 54 and the other to one side of piston head 50. Another curved link 67 is also connected adjacent its ends by fasteners 65 with one end being connected to tab 57. The other end of link 67 is connected to piston head 50 on the side opposite that to which link 64 is connected.

When piston rod 49 and piston head 50 are urged to their forward position by compression spring 51, eyelids 22 and 24 are biased to pivot to an abutting, eye closed position as illustrated in FIGS. 1, 3 and 4. With piston head 50 in the forward position, link 64 pushes tab 54 upwardly which pivots eyelid 22 down about the axis of pins 60 and 61. Similarly, with piston head 50 in the forward position, link 67 pushes tab 57 downwardly and pivots eyelid 24 upwardly about the axis of pins 60 and 61. However, when pressure is exerted on the abdomen of toy bear 10 in the direction of the arrow illustrated in FIG. 6, that pressure is transmitted through pad 31 to push actuator lever 30 rearwardly which both energizes lights 40 and, through engagement of upper end 35 in pocket 52, pushes piston head 50 and piston rod 49 back against the bias of compression spring 51. As piston head 50 moves rearwardly, link 64 pulls tab 54 back and down causing upper eyelid 22 to pivot upwardly about the axis of pins 60 and 61. Simultaneously, link 67 is pulled back with piston head 50 and pulls tab 57 back and up causing eyelids 24 to pivot downwardly about the axis of pins 60 and 61. Thus, a child may readily control the opening and closing of eyelids 22 and 24 and maintain them in various intermediate positions by exerting pressure on the abdomen of toy plush bear 10.

Because contacts 37 and 38 are relatively closely spaced from each other and are proximate the actuator lever, very little movement of actuator lever 30 is required to engage the contacts and turn lights 40 on in eyes 20. Such energization of lights 40 occurs as soon as the eyelids 22 and 24 begin to pivot apart. Accordingly, eyes 20 will be lit whenever eyelids 22 and 24 are open. Overlapping rims help in obscuring the light if it should turn on before the lids open or if it should stay on for a while after the lids close.

Claims

1. A toy character or doll comprising in combination:
 - a compressible body;
 - a head mounted atop the body;
 - a pair of eyes capable of transmitting light

mounted in the head;

a selectively energizeable light source disposed behind the eyes;

at least one movable lid member carried by the head for each of the eyes for selectively covering or exposing the eyes;

means for mechanically moving the at least one lid member for each of the eyes for covering and exposing the eyes;

the mechanical means including an actuator within the body;

the actuator being movable in response to pressure exerted upon a portion of the compressible body; and

the mechanical means including means biasing the at least one movable lid member for each of the eyes to cover the eyes and also biasing the actuator.

actuating means out of contact with the means for selectively energizing the light source.

2. The toy of Claim 1 further comprising:

means within the body for selectively energizing the light source upon moving the actuator to move the at least one lid member for each of the eyes to expose the eyes; and

the biasing means also biasing the actuator out of contact with the means for selectively energizing the light source.

3. A toy character or doll comprising in combination:

a compressible body;

a head mounted atop the body;

a pair of eyes capable of transmitting light mounted in the head;

a selectively energizeable light source disposed behind the eyes;

means carried by the head for selectively covering or exposing the eyes;

means for mechanically moving the means for covering and exposing the eyes carried by the toy;

means within the body for actuating the mechanical means in response to pressure exerted upon a portion of the compressible body; and

the mechanical means including a biased piston which biases the means for selectively covering or exposing the eyes to one position and also biases the actuating means.

4. The toy of Claim 3 further comprising:

means within the body for selectively energizing the light source upon actuating the means to move the means for covering and exposing the eyes to expose the eyes; and

the biased piston biasing the means for selectively covering or opening the eyes to a position covering the eyes and also biasing the

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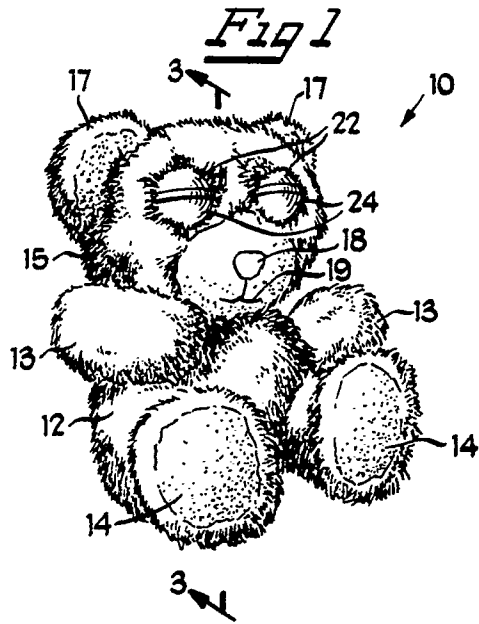


Fig 7

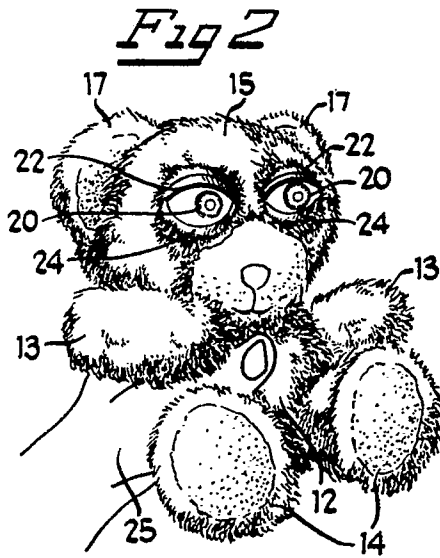
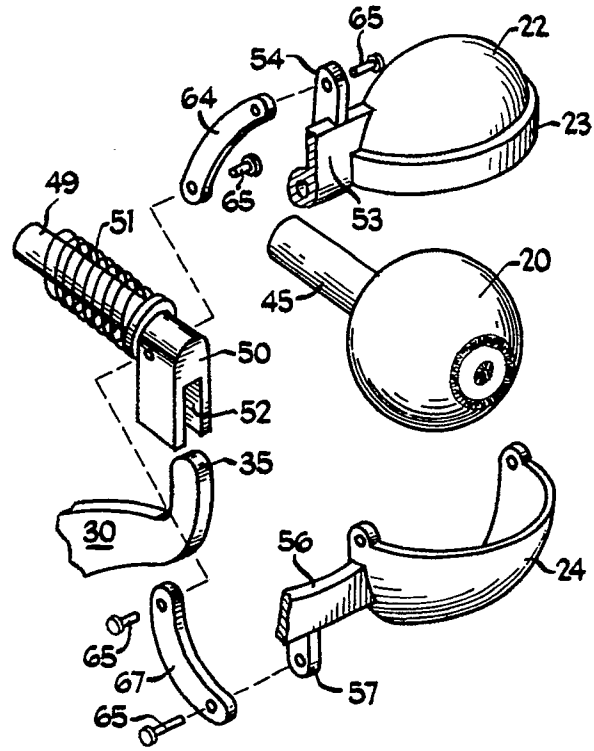


Fig 3

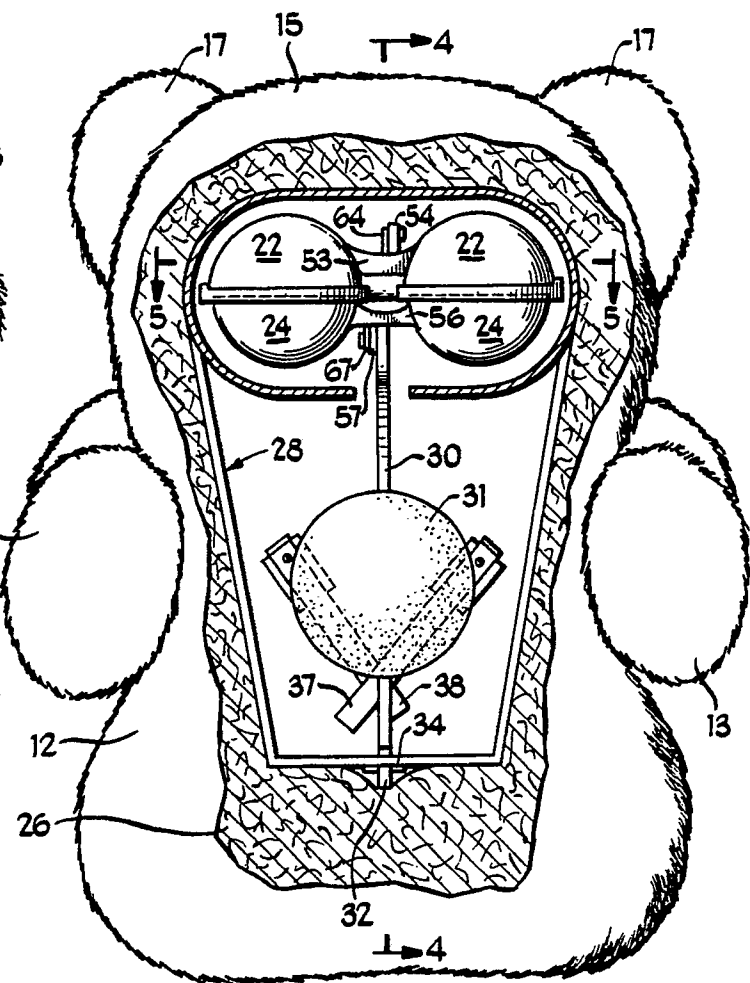


Fig 4

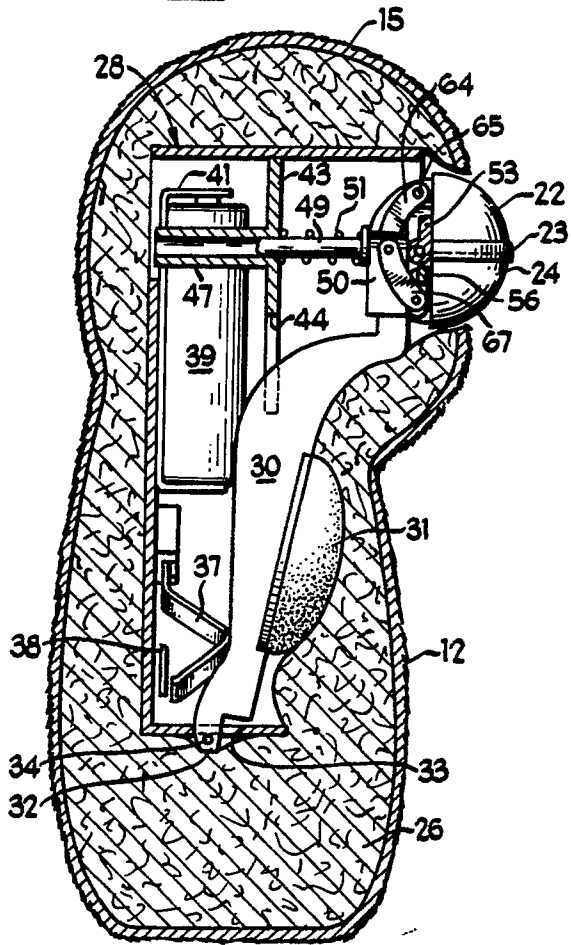


Fig 5

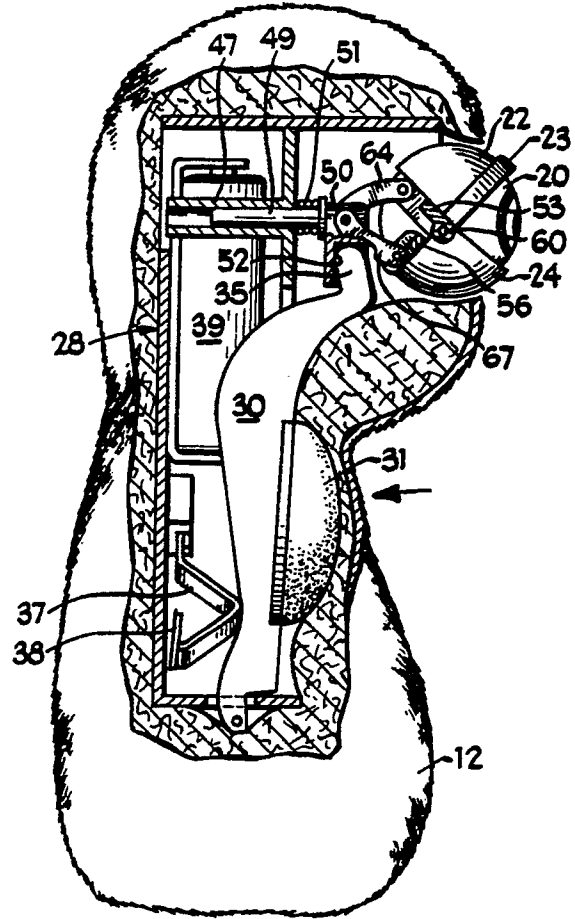


Fig 6

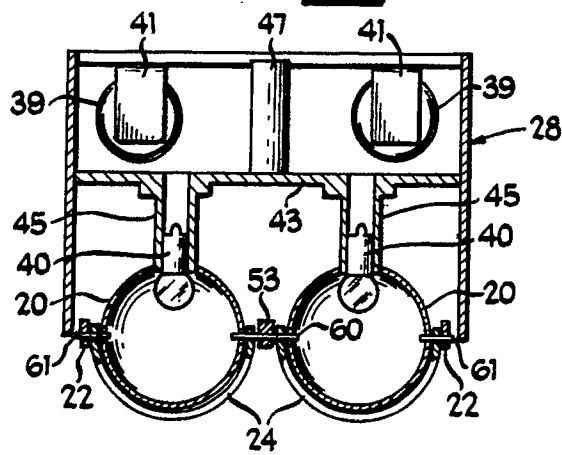
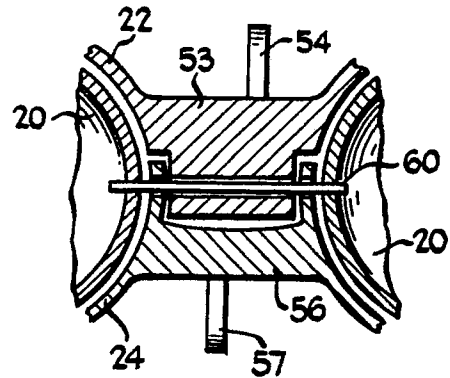


Fig 7





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EUROPEAN SEARCH REPORT

Application Number

EP 91 30 0876

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)
Y	US-A-4 424 644 (SAPKUS et al.) * Figures 1,2,3; column 2, lines 54-57; column 3, lines 65-67 *	1	A 63 H 3/00 A 63 H 3/20 A 63 H 3/40
A	— — —	3	
Y	FR-A-5 643 65 (BERLIZE et al.) * Figures 2,5; page 1, line 58 - page 2, line 4; page 2, lines 25-35 *	1	
A	— — —	2,3,4	
A	US-A-2 572 795 (WOOD et al.) * Figures 1,2,3; column 3, lines 20-27,46-61 *	1	
A	— — —	3,4	
A	GB-A-1 425 306 (KOSEI KATO) * Figure 1; page 2, lines 16,17 *	1	
A,D	— — —	1	
A	GB-A-1 166 410 (GLASS) * Figure 3; page 2, lines 24-29 *	1	
A	— — —	1	
A	US-A-3 699 707 (SAPKUS) * Figures 1-3 *	1	
A	— — —	1	
A	GB-A-8 266 27 (WALSS) * Figures 3,4,6-9; page 3, lines 105-107 *	1	
A	— — — — —		
The present search report has been drawn up for all claims			
Place of search		Date of completion of search	Examiner
The Hague		12 April 91	SEDY, R.
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			