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(11) Publication number:

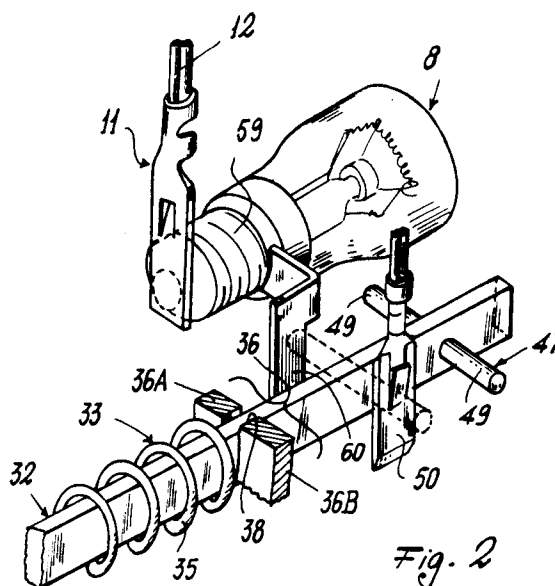
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EUROPEAN PATENT APPLICATION(21) Application number: **93110667.8**(51) Int. Cl.⁵: **F25D 27/00**(22) Date of filing: **05.07.93**(30) Priority: **13.07.92 IT MI920691 U**(43) Date of publication of application:
19.01.94 Bulletin 94/03(84) Designated Contracting States:
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I-21025 Comerio (VA) (IT)(54) **Lampholder unit, particularly for refrigerators and the like.**

(57) A lampholder unit (1), in particular for a refrigerator or the like, comprises a pushbutton (21) arranged to cooperate with a usual door of said refrigerator, and a seat (4) for a usual lamp (8).

The lamp seat (4) is provided in a one-piece body (2) comprising a further seat for a movable member (27) associated with the pushbutton (21) and carrying an element (47) arranged to cooperate with at least one connector (50) removably inserted into a respective housing (51) in said body and connected to a usual power line (57), said movable member (27) being opposed in its movement by an elastic element (32) arranged in the seat which houses said member, an insert (54) removably associated with said body and cooperating with the lamp (8) being able to be connected to said connector (50) via the element (47) carried by said movable member (27) so as to electrically power said lamp (8).

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This invention relates to a lampholder unit, in particular for a refrigerator or the like, comprising a pushbutton arranged to cooperate with a usual door of said refrigerator, and a seat for a usual lamp, the lighting or non-lighting of the lamp being determined by the cooperation between said pushbutton and the door.

Known lampholder units comprise a plurality of parts which are fitted together on mounting (or immediately prior to mounting) such units in the refrigerator cabinet.

A particular known lampholder unit comprises a first part with which the lamp is associated, a plurality of connector elements for connection to a usual lamp power line, and a further part associated with the pushbutton. This second part is generally connected to the first (which generally comprises said connectors) such that the pushbutton, in known manner, enables the lamp to be powered when the refrigerator door is opened, but prevents lighting when the door is closed.

This lampholder unit has however various drawbacks.

For example the provision of several parts to be fitted together results in a lengthy assembly time for the final product, with a consequent not inconsiderable construction cost.

In addition, the plurality of component parts of said unit can be a source of problems related both to probable errors by the assembling operator and to a reduced reliability of the unit because of possible faults which can arise in its individual component parts.

Moreover, different moulds are required to form the different component parts of the known lampholder unit (generally formed by moulding). Their initial and maintenance costs negatively affect the cost of the finished lampholder unit and hence also the cost of the refrigerator in which it is positioned.

An object of the present invention is to provide a lampholder unit of the aforesaid type which is of simpler construction than similar known units and is of lower cost than these.

A further object is to provide a unit of the said type which is of high reliability and has a smaller number of component parts than known lampholder units, with consequent reduction in the number of moulds or production machines required for these components. These and further objects which will be more apparent to the expert of the art are attained by a lampholder unit of the stated type, characterised by comprising a one-piece body containing the seat for the lamp, said body comprising a further seat for a movable member associated with the pushbutton and carrying an element arranged to cooperate with connectors removably inserted into respective housings in said body and connected to a usual power line, an insert remov-

ably associated with said body and cooperating with the lamp being connectable to one of said connectors via the element carried by said movable member so as to electrically power said lamp when the refrigerator door is opened.

The present invention will be more apparent from the accompanying drawing, which is provided by way of non-limiting example and in which:

Figure 1 is a perspective exploded view of a lampholder unit according to the invention;

Figure 2 is a perspective view, with certain parts omitted, showing a detail of the lampholder unit of Figure 1;

Figure 3 is a partial section on the line 3-3 of Figure 1 but with the lampholder unit assembled; and

Figure 4 is a view similar to that of Figure 1, but of a modification of the invention.

With reference to said figures, a lampholder unit is indicated overall by 1 and comprises a body 2 presenting a substantially flat part 3 with which there is associated a hollow cylindrical part 4 opening onto a face 5 of a flat wall 6 perpendicular to the flat part 3. The cylindrical part is threaded in known manner and is able to receive a usual lamp 8. In the part 4 there is also provided a seat 10 for removably receiving an electrical connector 11 connected to a usual electrical power line via a corresponding cable 12. The seat 10 opens onto the outer surface 13 of the part 4 and into the hollow interior thereof.

The part 3 of the body 2 comprises a lateral wall 16 extending both upperly and lowerly from said part. This latter also has a raised rear edge 18 rising from that end of said part distant from that comprising the wall 6.

At that end of said edge 18 in proximity to the wall 16 there is positioned one end 20 of a pushbutton 21. This pushbutton is arranged to cooperate with a usual refrigerator door to assume two working positions based on this cooperation. Specifically, when the door is closed the pushbutton 21 has a portion 23 inserted into a seat 24 located below the flat part 3 and delimited by the wall 16. In the second working position corresponding to the refrigerator door open, the portion 23 is partly extracted from said seat 24.

The pushbutton passes from one position to the other by rotating about its end 20, which is retained in contact with the body 2 by the refrigerator cabinet in known manner if the body is fixed to the cabinet, or by another element (as described hereinafter) interposed between the lampholder unit and the refrigerator cabinet. The end 20 therefore acts as a hinge for the rotation of said pushbutton.

The portion 23 of this latter is associated, for example by adhesive or by sliding, with one end 25 of a part 26 of an element 27 movable in a

corresponding seat in the body 2 of the unit 1. The portion 23 can also be formed integrally with said element 25. More specifically, the part 26 comprises a portion 29 arranged to slide along a guide 30 provided in the body 2 of the unit 1 on the flat part 3. The guide 30 is rectilinear, hence the element 27 moves linearly and rectilinearly relative to said flat part 3. The element 27 comprises a bar-shaped part 32 on which there is arranged a compression spring 33 having one end 34 resting against the part 26 of said element and its other end 35 resting against a stop member 36 associated with the flat part 3 of the body 2 of the unit 1. More specifically, said stop member 36 comprises two parallel arms 36A and 36B defining a passage 38 through which the bar-shaped part 32 penetrates.

This latter slides on a support 40 provided on a base element 41 (said support forming an integral part of the lampholder unit) with which the body 2 of the unit 1 is associated, and which comprises a further support wall 42 for the pushbutton 21. The support wall 42 comprises a seat 43 for said pushbutton, which comprises an edge 44 which abuts against said wall. The base element 41 supports the pushbutton and the entire body 2 of the unit 1, and secures said pushbutton to the refrigerator cabinet in any known manner.

The element 27 also comprises fins 27A and 27B for support on raised portions 45 of the base element 1.

The bar-shaped part 32 of the element 27 comprises a seat 46 removably containing a member 47 with its longitudinal axis W transverse to the axis K of said part 32. This member has an annular recess 48 lying between two end portions 49 arranged to cooperate with a connector 50 removably inserted into a seat 51 in the body 2 of the unit 1 and with a connection member 54 removably inserted into another seat 55 in said body. The connector 50 is connected to the power line via an electric cable 57, and the member 54 comprises an arm 58 which makes contact with a usual metal part 59 of the lamp 8. This member has a portion 60 arranged to cooperate with one of the ends 49 of the transverse member 47 associated with the element 27.

It will now be assumed that the unit 1 is to be assembled. This is a very simple operation because of the modularity of all the component elements of the unit.

The member 54 is firstly fitted into its seat 55 and fixed therein for example by bending the lug 54B. The spring 33 is then placed on the bar-shaped part 32 of the element 27, with which the pushbutton 21 is now associated, and the entire assembly is inserted into the corresponding seat in the body 2 of the unit 1. Finally, said body 2 is

fixed to the base element 41, as a result of which the end of the pushbutton 21 is retained in the seats 42 of the base element 41. This fixing is achieved for example by adhesive, by usual snap-fitting elements provided on the parts, or by utilizing the hot plastic deformation of the body 1 and element 41, both preferably of plastics construction by moulding. By this means, the pushbutton 21 remains associated with the body 2. The connectors 11 and 50 are then inserted into their seats 10 and 51, and the entire unit is mounted in known manner in the refrigerator cabinet.

The lampholder unit is therefore obtained easily and rapidly, with low construction time and cost.

In the modified embodiment of Figure 4 (in which parts corresponding to those of the already described figures are indicated by the same reference numerals), the pushbutton 21 and the bar-shaped part 32 act as a two-way pushbutton. For this purpose the member 47 is positioned in an elongate hole 70, to allow it to move as required against springs 71 and 72 acting on it and against a stop member 36 and a similar member (not shown) rigid with the element 41 respectively. The member 47 is arranged to cooperate with both the connector 50 and the portion 60 of the member 54, and with a further pair of connectors 76 and 77. The connector 76 is connected to the connector 50, both acting as "neutral" in the refrigerator electrical circuit to which unit 1 is connected. The connector 77 is connected to an electrical line 78 terminating in any user item, such as the usual fan 3 in an air circulation refrigerator. Hence in the two working positions the member 47 powers the lamp 8 and operates the user item respectively. The connectors 76 and 77 are secured to the unit 1 by providing suitable seats (not shown) in the part 3. Particular embodiments of the invention have been described. The invention is however subject to modifications (for example in which the element 27 is part of the pushbutton 21), which are to be considered as falling within the scope of the present document.

Claims

1. A lampholder unit, in particular for a refrigerator or the like, comprising a pushbutton arranged to cooperate with a usual door of said refrigerator, and a seat for a usual lamp, the lighting or non-lighting of the lamp being determined by the cooperation between said pushbutton and the door, characterised by comprising a one-piece body (2) containing the seat (4) for the lamp (8), said body (2) comprising a further seat for a movable member (27) associated with the pushbutton (21) and carrying an element (47) arranged to cooperate with at

least one electrical connector (50) removably inserted into a respective housing (51) in said body and connected to a usual power line, an insert (54) associated with said body (2) and cooperating with the lamp (8) being connectable to said connector (50) via the element (47) carried by said movable member (27) so as to electrically power at least said lamp (8) when the refrigerator door is opened.

2. A lampholder unit as claimed in claim 1, characterised in that the movable member (27) associated with the pushbutton (21) cooperates with an elastic element (33) and is removably associated with the body (2) of said unit (1). 15
3. A lampholder unit as claimed in claim 2, characterised in that the elastic element is a compression spring (33) mounted on a bar-shaped part (32) of the movable member (27). 20
4. A lampholder unit as claimed in claim 3, characterised in that the bar-shaped part (32) is positioned between stop elements (36A, 36B) arranged side by side to define a passage (38) through which said part (32) passes, against said stop elements (36A, 36B) there acting one end (35) of the compression spring (33), the other end (34) of which acts against a portion (26) of the movable member (27) with which it is associated, said bar-shaped part (32) comprising a seat (46) for the element (47) cooperating with the electrical connector. 25 30
5. A lampholder unit as claimed in claim 2, characterised in that the movable member (27) comprises a part (29) movable within a guide (30) in the body (2) of the lampholder unit (1). 35
6. A lampholder unit as claimed in claim 1, characterised in that the movable member (27) is part of the pushbutton (21). 40
7. A lampholder unit as claimed in claim 1, characterised in that the pushbutton (21) comprises a part (20) about which it rotates during use and which reacts against the body (2) of the lampholder unit (1). 45
8. A lampholder unit as claimed in claim 1, characterised in that its body (2) comprises a substantially flat part (3) with which there is associated a hollow cylindrical part 4 receiving the lamp (8), in said parts (3, 4) there being provided seats for the electrical connector (50), for the insert (54) and for a further electrical connector (11) removably associated with said body (2) and arranged to cooperate directly 50 55

with the lamp (8).

9. A lampholder unit as claimed in claim 8, characterised in that its body (2) is associated with a base element (41) which supports it within the refrigerator cabinet.
10. A lampholder unit as claimed in claim 1, characterised in that the insert (54) cooperating with the electrical connector (50) associated with the body (2) of said unit (1) has a portion (58) in contact with the lamp (8).
11. A lampholder unit as claimed in claim 1, characterised in that the element (47) associated with the movable member (27) is arranged to cooperate with other electrical connectors (76, 77) connected to an electrical line powering any usual known user item present in the refrigerator, said movable member (27) acting as a change-over switch for switching power from the lamp (8) to said user item.

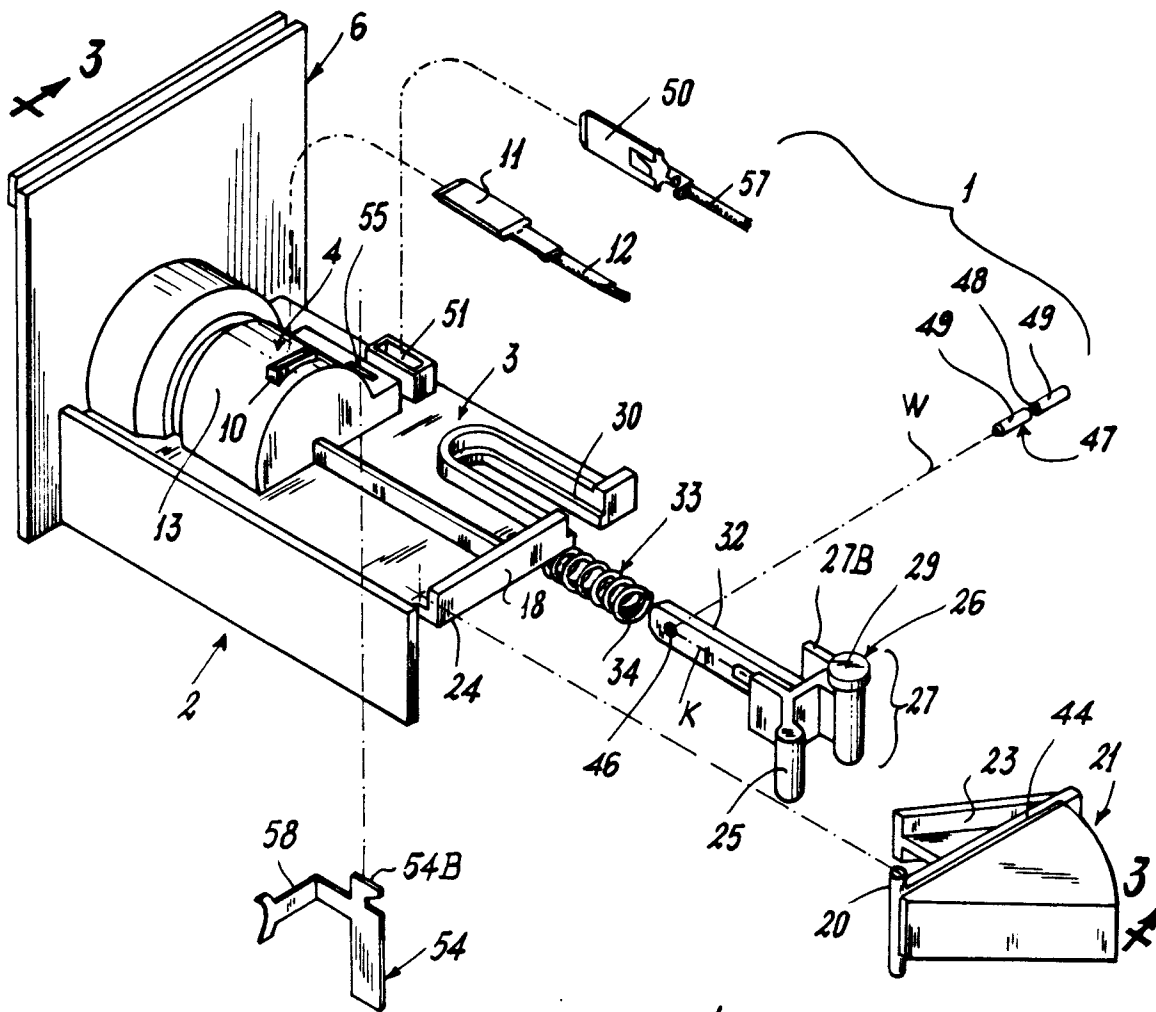
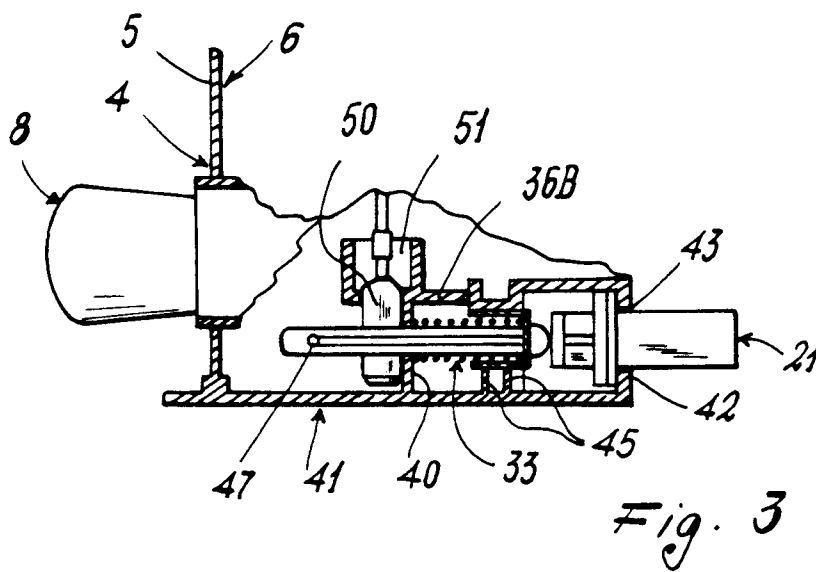
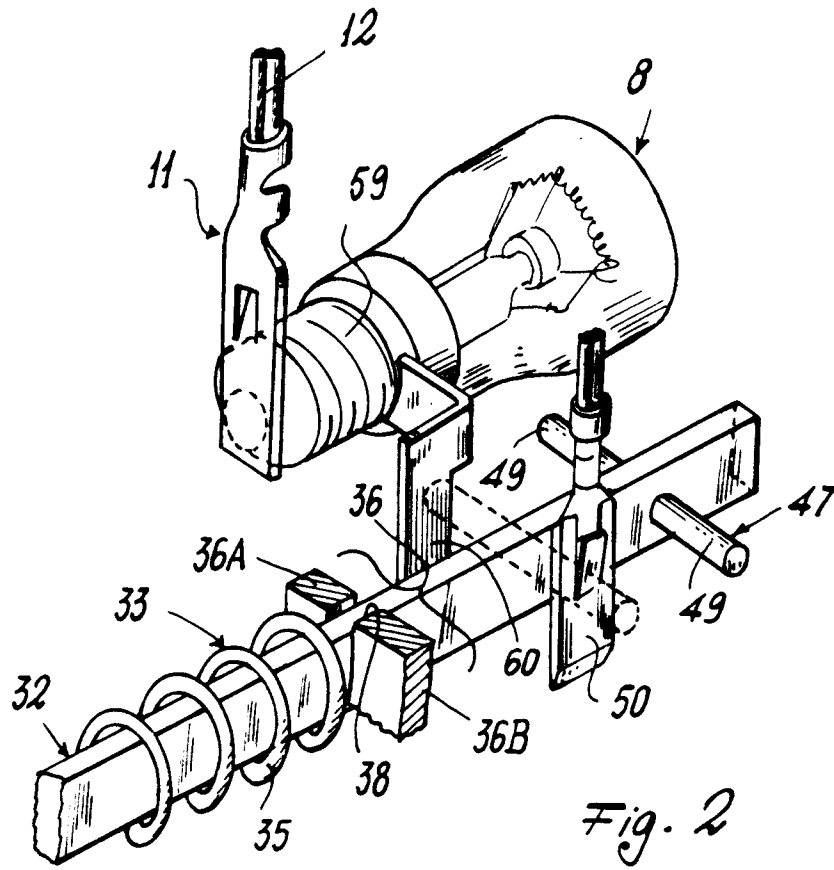


Fig. 1



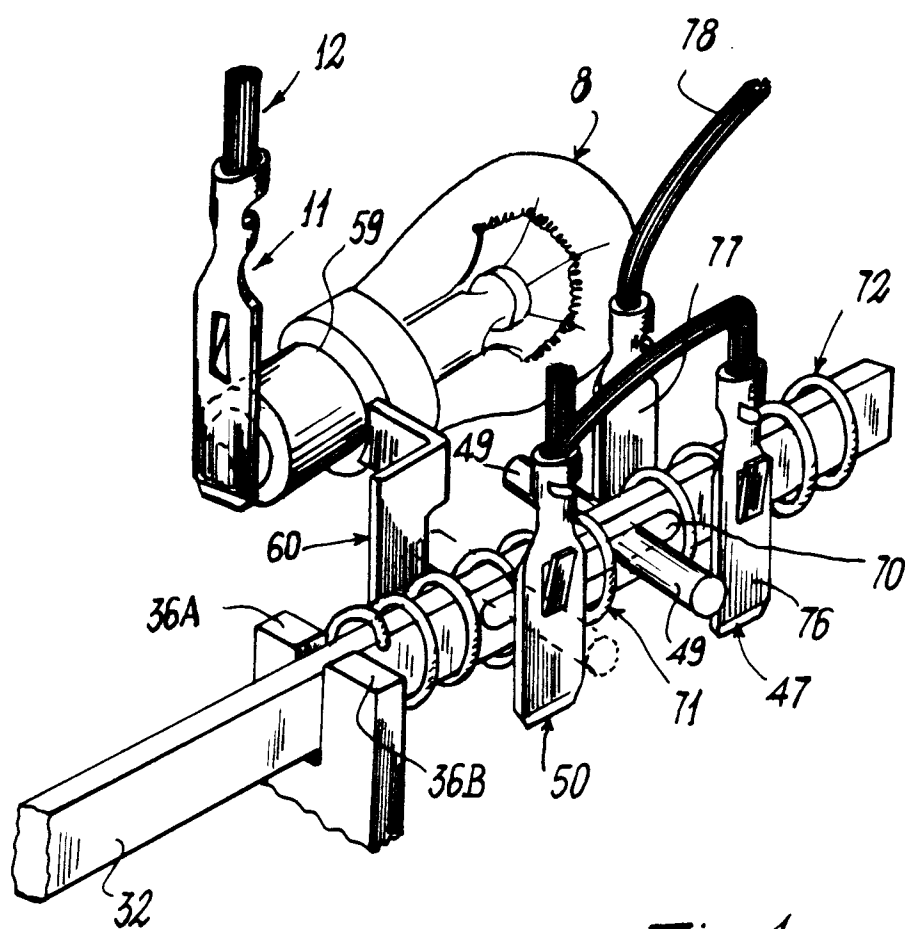


Fig. 4



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EUROPEAN SEARCH REPORT

Application Number

EP 93 11 0667

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)
A	GB-A-2 221 524 (ITW FASTEX ITALIA) * page 4 - page 11; figure 1 * ---	1-3,5,6, 8,11	F25D27/00
A	US-A-2 104 164 (OSBORNE) -----	1-6,9	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			F25D F23V F21V
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 22 OCTOBER 1993	Examiner BAECKLUND O.A.
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			