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(54) Illumitated fire escape route.

(57) An escape route indication system comprising hazard detectors (D) each located in a respective area of a building having a plurality of exits, direction indicating means (54), and control means (34) connected with the hazard detectors and the direction indicating means, the control means being responsive to the indication from a detector of the presence and location of a hazard to energise the direction indicating means to show at any point the shortest safe route between that point and an exit.

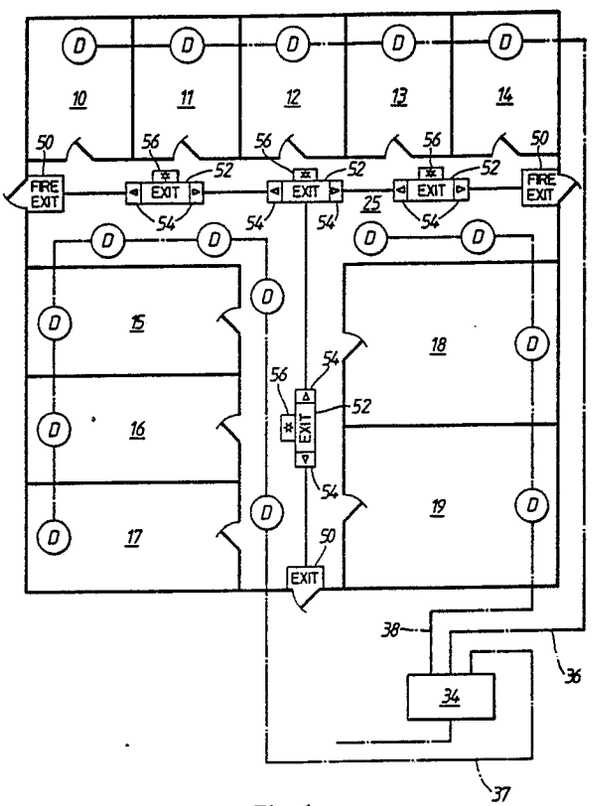

Fig.1.

EP 0 361 973 A2

ESCAPE ROUTE INDICATION SYSTEM

This invention relates to an escape route indication system to assist persons in a building threatened by a hazard to find a quick and safe exit route. Such hazards include fire, escape of dangerous or toxic substances, radiation leakage and the like. As the fire hazard is the most common the invention will be described in the context of the fire hazard.

Fire warning systems in many buildings or enclosed spaces used by members of the public are rudimentary and may consist of no more than an alarm bell, to indicate the existence of a fire somewhere in the building, the signs at emergency exits. The inadequacies of such systems have been tragically underlined over the years by the number of people killed in major fires quite simply because they did not, and could not, know a safe exit route.

It is an object of the present invention to provide an escape route indication system which obviates or mitigates the above problem.

The present invention is an escape route indication system comprising hazard detectors each located in a respective area of a building having a plurality of exits, direction indicating means, and control means connected with the hazard detectors and the direction indicating means, the control means being responsive to the indication from a detector of the presence and location of a hazard to energise the direction indicating means to show at any point the shortest safe route between that point and an exit.

An embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:-

Fig. 1 is a floor plan of a simple building incorporating a fire escape route indication system according to the present invention; and

Fig. 2 is a schematic circuit diagram of the system of Fig. 1.

Referring now to Figure 1, the floor plan of a small office building is shown as consisting of rooms 10 to 19, an East-West corridor 25, and a North-South corridor 26. A main exit is provided at the South end of the corridor 26 and fire exits are provided at the ends of the East-West corridor 25.

A hazard detection system comprises a central unit 34 to which are connected three lines 36, 37 and 38. The line 36 links detectors D (these may be smoke detectors and/or heat detectors or other detectors indicative of a fire) in each of rooms 10 to 14. The line 37 links detectors in rooms 15, 16 and 17 and detectors D (which may include manual push buttons) in the west end of the corridor 25 and in the corridor 26. The line 38 links detectors in the east end of the corridor 25 and detectors in the rooms 18 and 19.

The smoke detector system is such that each smoke detector/alarm button D communicates to the control unit 34 not only the existence of smoke but also its location. A suitable system is the COBRA-S system marketed by Colt International Limited.

When the control unit 34 receives a signal that smoke has been detected in a particular space or area, it communicates that information to a central processor 44 (Fig. 2) which is programmed to take account of the location of the fire and illuminate signs throughout the building indicating not only the location of exits and fire exits but also the shortest safe route from any point in the building to an exit.

Thus at each exit or fire exit a sign 50 is illuminated while at intervals along the corridors other exit signs 52 and arrows 54 are illuminated. The signs and arrows are, in this embodiment, made to flash on and off to ensure that they attract the attention of people in the building. If the fire spreads, the computer is programmed to take account of that also and to modify the illumination pattern and the indications of the shortest safe routes.

Also controlled by the processor 44 is an audible system based on loudspeakers 56 which can for example warn people of the fire danger or advise them to evacuate the building or instruct them to follow the illuminated arrows to an exit.

The signs and arrows are provided in the form of modules connected, as shown in Fig. 2, in an addressable communication system 60 powered by a channel generator 62. Each module 52, 54 is controlled by a decoder 64 responsive to its own uniquely coded signals applied to the system by the processor 44 through an interface unit 35. The generator 62 ensures a power supply independent of the mains supply to the building, and this independent power supply facility may also be exploited to energise emergency lighting via the communication system 60.

As illustrated, the signs 52 have the word EXIT with associated direction arrows to be illuminated as necessary, and are located at points along the corridors and at corridor junctions, i.e. generally where a person would require to make a decision as to the best escape route. Intermediate the signs 52 further arrows 54 may be provided in pairs pointing in opposite directions, normally only one arrow of the pair being illuminated at a time.

The arrows 54 may be replaced by a continuous chain of lights energised to give a ripple effect

leading in the appropriate direction.

The signs and arrows may be suspended from the ceiling or may be wall mounted or may be incorporated in the floor.

While the embodiment described has referred to the system as covering the entire building practical limitations on for example the capacity of the communication system, could limit the warning system to a sub-zone of the building in which case some of the exits could be into an adjacent sub-zone rather than to the outside of the building.

Claims

1. An escape route indication system comprising hazard detectors each located in a respective area of a building having a plurality of exists, direction indicating means, and control means connected with the hazard detectors and the direction indicating means, the control means being responsive to the indication from a detector of the presence and location of a hazard to energise the direction indicating means to show at any point the shortest safe route between that point and an exit, and being responsive to one or more further indications from detectors to modify if necessary the indication of the shortest safer routes.

2. A system as claimed in claim 1, in which the hazard detectors are fire or smoke detectors.

3. A system as claimed in claim 1 or claim 2, in which the direction indicating means comprises chains of light, the control means energising the lights in a ripple mode.

4. A system as claimed in claim 1 or 2, in which the direction indicating means comprises signs incorporating arrows.

5. A system as claimed in claim 4, in which the indicating means includes signs having wording indicative of an exit in conjunction with directional arrows.

6. A system as claimed in any preceding claim, including an audible system responsive to the control means to broadcase audible information when a hazard has been detected.

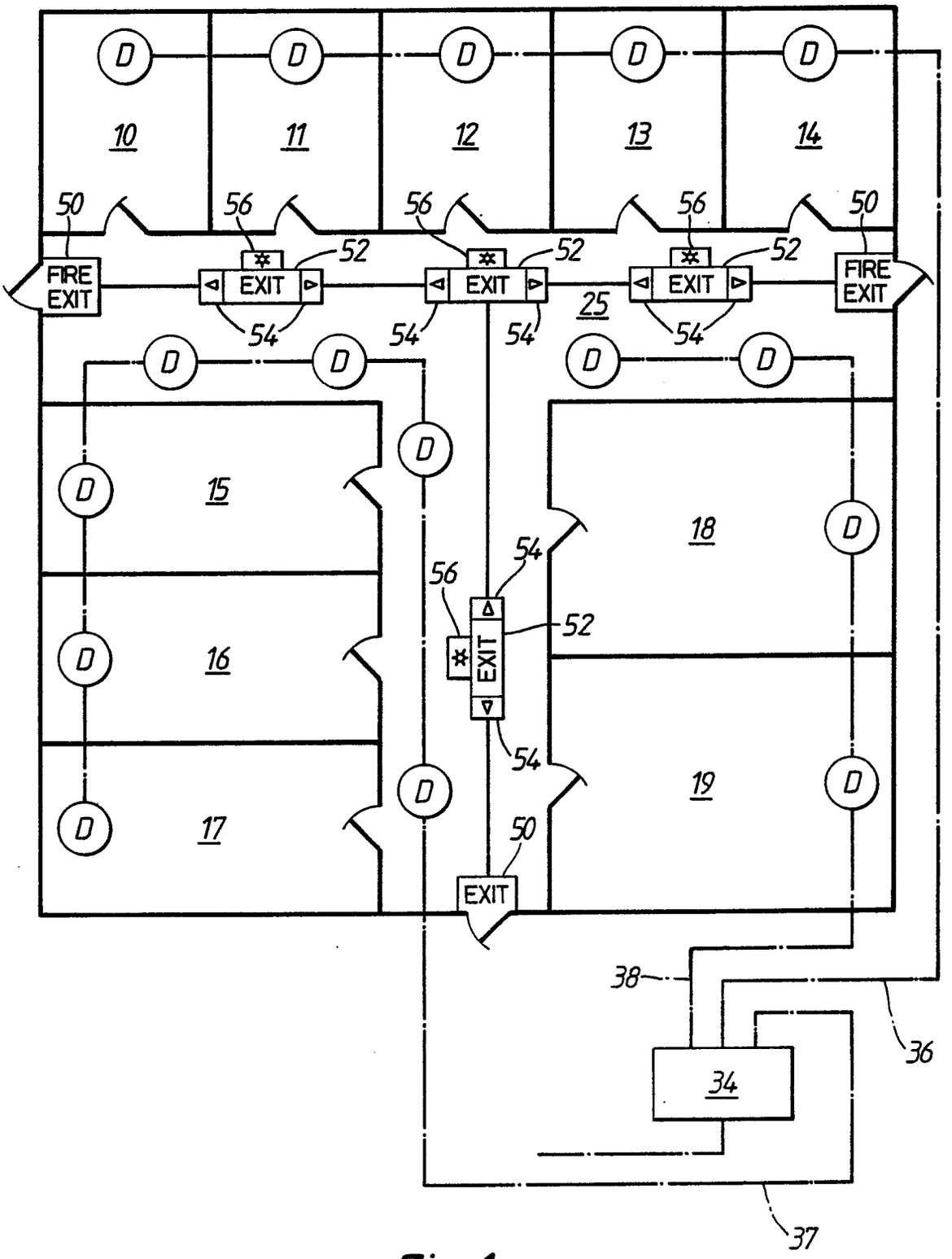

Fig.1.

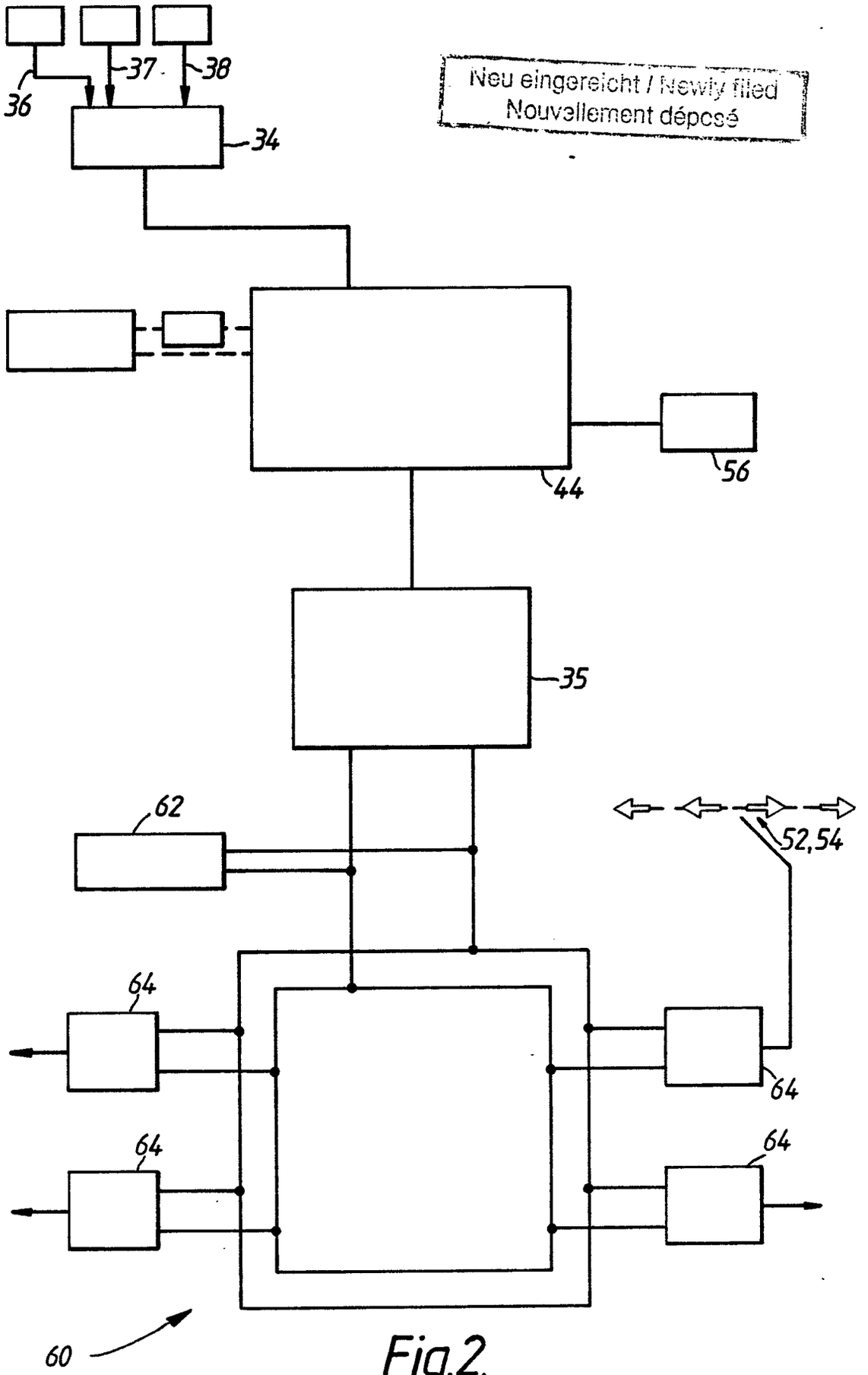

Fig.2.