

9704727-8
J005 copy

REPLACED SHEETS SG

- ☐ Description : paged to paged
☐ Claim(s) : paged to paged
☒ Drawing(s) : paged to paged
☒ Abstract : paged 10 to paged -

1

HOTEL ROOM DETECTION SYSTEM

FIELD OF THE INVENTION

This invention relates to a hotel room detection syetem, particularly to a detection system which detects whether there are guests in the hotel room by means of detecting the infrared energy emmitted from the guest bodies or the reflected microwave signal. The housekeeper need not to knock the door of the hotel room or to ring the bell. The working efficiency of the housekeeper is increased. The housekeeper does not interfere with the living of the guests.

BACKGROUND OF THE INVENTION

A hotel or motel provides a clean dwelling place for guests. In order to avoid interfering with the living of the guests and to protect the privacy of the guests, a housekeeper uses a backup key to enter the guest room, to clean the room, to change the bedcloth and to supplement drinks in the refrigerator only when the guests leave the room. Unless the guests specifically instruct the housekeeper not to clean, or unless a message board of not disturbing is hung on the door, the housekeeper usually knocks a door of each room or rings a bell to assure that the guests are not in the room. After a while, if the door is not opened, the housekeeper knocks the door or rings the bell again to reassure that the guests have left the room. After the above action is completed, the housekeeper considers that the guests really leave

and she can enter the room by using the key in order to clean. However, the guests may forget to instruct or to hang the message board when they are in the room, and the guests may not hear the knocking sound or the bell because the guests are taking a shower or sleeping, so that upon entering the housekeeper finds that the guests are in a bath room or they are sleeping. Then, the housekeeper will frighten the guests and cause disturbance so that the fame of the hotel is damaged because the housekeeper infringes the privacy of the guests. Therefore, this detection method can not correctly judge that the guests are in the room. At present, there is no hotel room detection system available in the market, the housekeeper has no choice but to knock the door or ring the bell. The service time of the housekeeper is too long so that she may overwork. The detection method degrades the service quality and destroys the fame of the hotel because of the disturbance. Therefore, it is necessary to develop a detection system to solve the above problems.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a hotel room detection system for detecting the presence of a guest in a hotel room comprising one or more hotel room detectors which receive the detection signal, such as an infrared energy emitted from the guests, a microwave signal reflected from the guests, etc., for detecting the presence of guests in the hotel room, and

which convert the detection signal into a presence signal and a room number signal to be transmitted by means of radio wave or infrared energy; a receiver which receives the presence signal and the room number signal from the hotel room detector for showing the presence of a guest in the hotel room having a specific room number. A specific room number may be set on the hotel room detector for each hotel room. When the room number is keyed into the receiver by a housekeeper, the result of the detection, i.e. the existence of a guest in the room of the specific room number, is received by the receiver. Then, the detection result is shown on the display of the receiver in order to facilitate the cleaning operation of the housekeeper.

It is another object of the present invention to provide a hotel room detection system by which the housekeeper need not to knock the door of the hotel room or to ring the bell in order to know whether the guests are present in the hotel room before entering. The working efficiency of the housekeeper is increased. The housekeeper does not interfere with the living of the guests.

BRIEF DESCRIPTIONS OF THE INVENTION

Fig. 1 is a block diagram of the hotel room detector of the present invention.

Fig. 2 is a top view showing the arrangement of the hotel room detector in the room according to the present invention.

Fig. 3 is a block diagram of the receiver of the present

invention.

Fig. 4 is an isometric view of the receiver of the present invention.

DETAILED DESCRIPTIONS OF THE INVENTION

5 The hotel room detection system of the present invention comprises a hotel room detector 10 and a receiver 30.

10 Please see Fig. 1 which is a block diagram of the hotel room detector 10 of the present invention. The hotel room detector 10 comprises one or more sensors 11 for sensing an infrared energy emmitted from guest bodies or a microwave signal reflected from the guests; a control circuit 12 which converts the detection signal into a presence signal and a room number signal; a transmitter 13 which transmits the presence signal and the room number signal by means of radio wave or infrared energy; and a
15 detector power supply 14 for powering the detector 10. For each sensor 11, a room number signal may be set and defined in the detector 10. Set means(not shown) for setting or erasing the room number are optionally disposed in detector 10. The room number is set on the detector 10 by the housekeeper and used for
20 distiguishing each sensor 11 in each room. The room number signal is emmitted from detector 10 and used for representing each sensor 11. The presence signal represents whether one or more guests are present in the room having the specific room number.

Each room of the general hotels is in the suite room type and

consists of a living room and a bath room. The present invention will be demonstrated by the application of the detection system to the suite room of the hotel. As shown in Fig. 2, one or more detectors 10 are disposed on the walls of the living room 22 and bath room 21 of the hotel room 20 so that the detector 10 can sense a broad range of detection angle covering the maximum area of the hotel room 20. Then, if a guest is present at a corner of the room 20, the detector 10 can sense his or her presence.

Please see Figs. 3 and 4 which respectively show the block diagram and isometric view of the receiver of the present invention. The receiver 30 is of a hand-holding or portable structure. The receiver 30 comprises an antenna 31 for receiving the presence signal and room number signal in the form of radio wave or infrared energy from a transmitter 13 of the detector 10 and for transferring the presence and room number signals to control means 32; display means 33 for showing the presence status of the guests in the room 20; control means 32 which processes the presence signal and room number signal to be sent to the display means 33; and a receiver power supply 34 for powering the receiver 30. The housekeeper can set the room number on the control means 32 and check the correctness of the setting shown on the display. The display means 33 comprises an LCD 331 and several LEDs 332. The LCD 331 shows the room number keyed in by the housekeeper for assuring the correctness of the room number. If the key-in room number is wrong, a correct room number is keyed in anew to replace the wrong

room number. The LEDs 332 are turned on or off to show the presence of the guests. In one case, one LED 332 is lightened to represent that there are guests in the room 20. In another case, the other LED 332 is lightened to represent that there is no guest in the room 20.

On the panel of the receiver 30 there are several keypads 35 for the housekeeper to key in the room number corresponding to a specific detector 10. The two LEDs 332 are divided into a first LED representing that the guests are present in the hotel room 20 and a second LED representing that the guest is not present in the hotel room 20 in order to show the sensing situation of the detector 10. Please see Fig. 2. When the housekeeper inputs the room number corresponding to a specific detector 10 at the outside of the hotel room door, the antenna 31 receives the presence and room number signals generating from a correspondent sensor 11 having a specific room number. The LEDs 332 display the detection result. The housekeeper decides whether the door is to be opened, and enters the hotel room 20, depending upon the display result of the LEDs 332. For example, if the room number of the sensors 11 of the living room 22 and the bath room 21 is 1845, the housekeeper at the outside of the door of the hotel room 20 keys in the room number 1845 through the keypad 35 of the receiver 30. Then, the antenna 31 receives the presence and room number signals from the sensors 11 having the room number 1845 at the living room 22 and the bath room 21. If the first LED representing that the guests are

present in the hotel room 20 is lightened, the housekeeper knows that there are guests in the hotel room 20. If the second LED representing that the guests are not present in the hotel room 20 is lightened, the housekeeper knows that there are no guests in the hotel room 20 before she enters the hotel room 20. The sensor of other hotel room corresponds to a different room number, e.g. 1840. The sensor of each hotel room corresponds to a specific room number. Each of the detection results shows the presence situation of each hotel room. The detection results will not confuse the housekeeper.

The detection system of the present invention reduces the service time of the housekeeper. The housekeeper does not bother the guests and does not interfere with the living of the guests. The housekeeper does not need to knock the door or to ring the bell, thus, the efficiency of service is increased.

While the invention has been particularly shown and described with reference to these preferred embodiments, it will be understood by those skilled in the art that various changes in form and details may be made without departing from the spirit and scope of the described in the above descriptions, it is requested that any modification or combination that comes within the spirit of this invention be protected.



We claim:

1.A hotel room detection system for detecting the presence of a guest in a hotel room who generats a detection signal comprising:

5 at least one hotel room detector which receives the detection signal from the guest and converts the detection signal into a presence signal and a room number signal to be transmitted; and

a receiver which receives the presence signal and the room number signal from the hotel room detector for showing the presence of a guest in the hotel room having a room number.

10 2.The hotel room detection system as claimed in claim 1 wherein the hotel room detector comprises

at least one sensor which detects the detection signal;

a control circuit which converts the detection signal into a presence signal and a room number signal;

15 a transmitter which transmits the presence signal and the room number signal; and

a detector power supply.

20 3.The hotel room detection system as claimed in claim 2 wherein the hotel room detector further comprises first set means which set the room number of each hotel room.

4.The hotel room detection system as claimed in claim 2 wherein the detection signal is an infrared energy emmitted from the guests.

5.The hotel room detection system as claimed in claim 2 wherein the detection signal is a microwave signal reflected from the guests.

25 6.The hotel room detection system as claimed in claim 2 wherein the



the presence signal and room number signal are transmitted by infrared energy.

7.The hotel room detection system as claimed in claim 2 wherein the the presence signal and room number signal are transmitted by radio wave.

8.The hotel room detection system as claimed in claim 1 wherein the receiver comprises

an antenna which receives the presence signal and the room number signal;

display means for showing the presence of the guests in the room;

control means which processes the presence signal and the room number signal to be sent to the display means and which contains second set means for setting the room number to be detected; and

a receiver power supply.

9.The hotel room detection system as claimed in claim 8 wherein the display means comprises

an LCD which shows the room number to be detected; and

a plurality of LEDs which show the presence of guests in the room.

10.The hotel room detection system as claimed in claim 8 wherein the control means comprises a keypad for inputting the room number.