United States Patent

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[54] **PLURAL MODULE CIRCUIT SIGNALING SYSTEM**
23 Claims, 9 Drawing Figs.

[52] **U.S. Cl.** **340/286,** 340/376
[51] **Int. Cl.** **G08b 5/00**
[50] **Field of Search** 340/286, 376

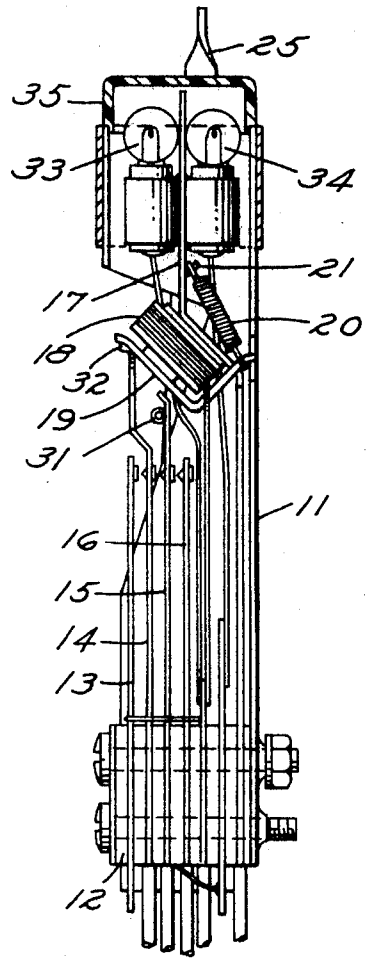
[56] **References Cited**

UNITED STATES PATENTS

3,202,978	8/1965	Lewis	340/286
3,214,747	10/1965	Lurie	340/286
3,228,020	1/1966	Gassenheimer	340/286
3,251,050	5/1966	Given	340/286
3,258,763	6/1966	Klein	340/286 X

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ABSTRACT: A signaling system including a plurality of switching modules each of which includes a manually operated member adapted to be selectively actuated to one of four positions and a remotely operated switch which, upon actuation, changes the position of the manually operated member. Each switching module further includes indicia means in the form of lightbulbs.



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FIG. 1

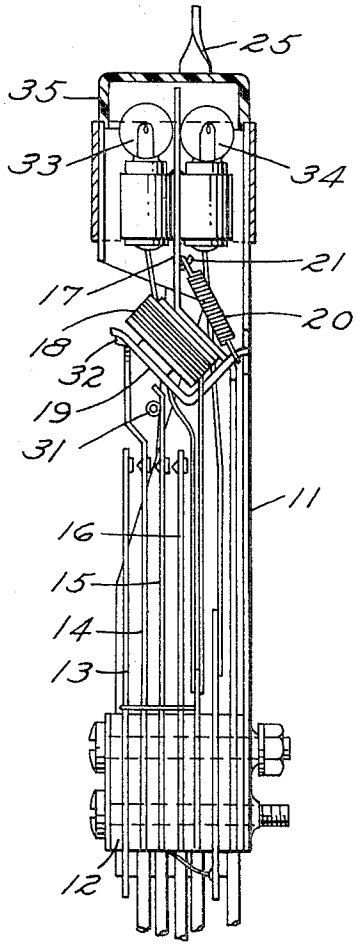


FIG. 2

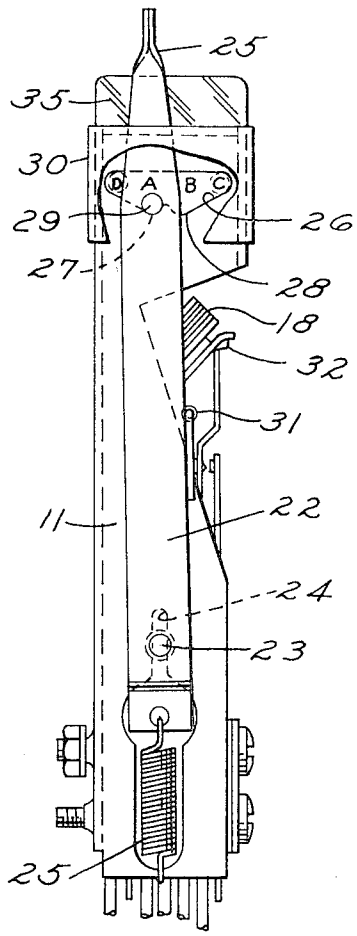
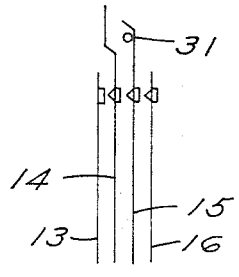
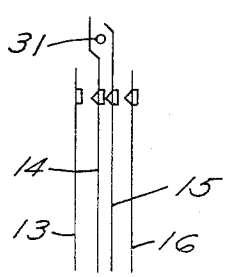


FIG. 3



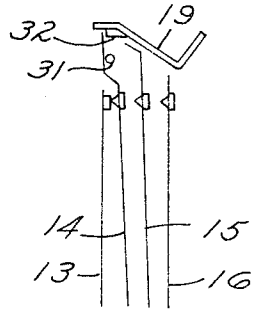
POSITION-A

FIG. 4



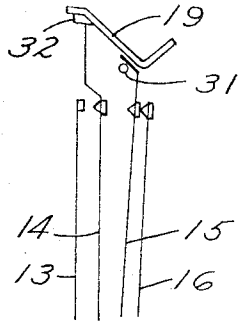
POSITION-B

FIG. 5



POSITION-C

FIG. 6



POSITION-D

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FIG. 7

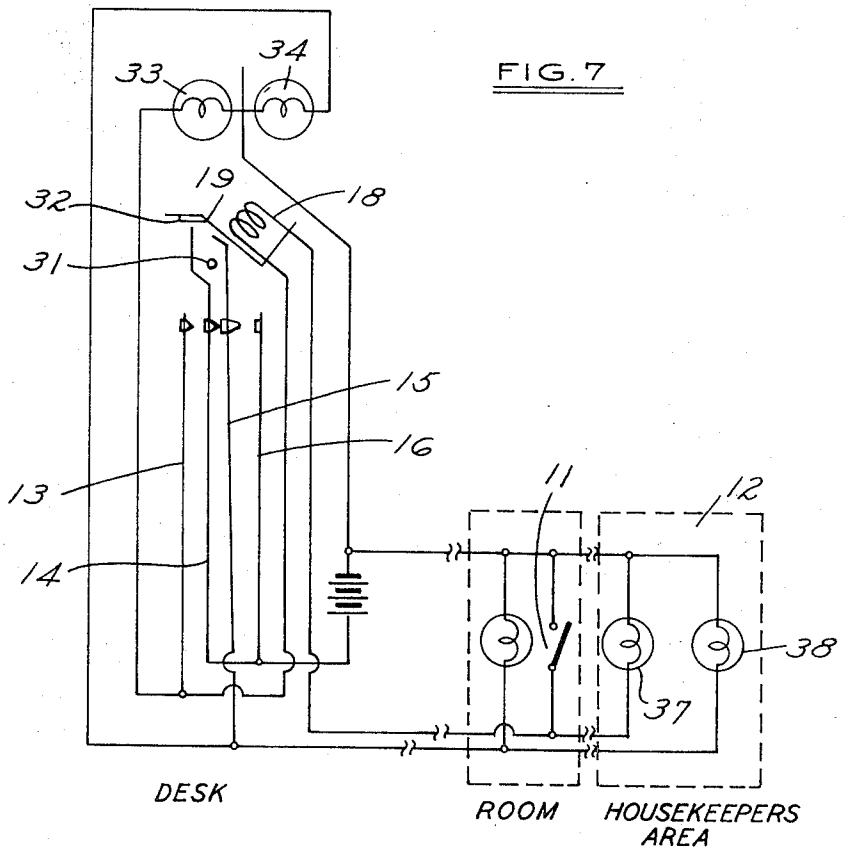
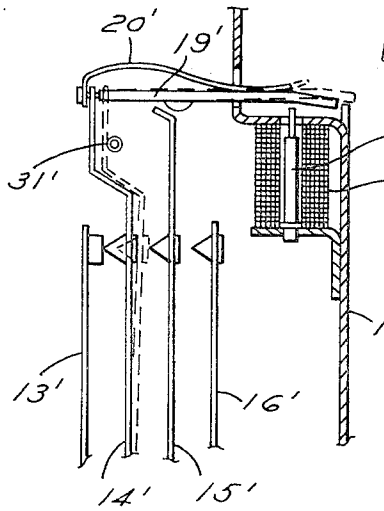


FIG. 8



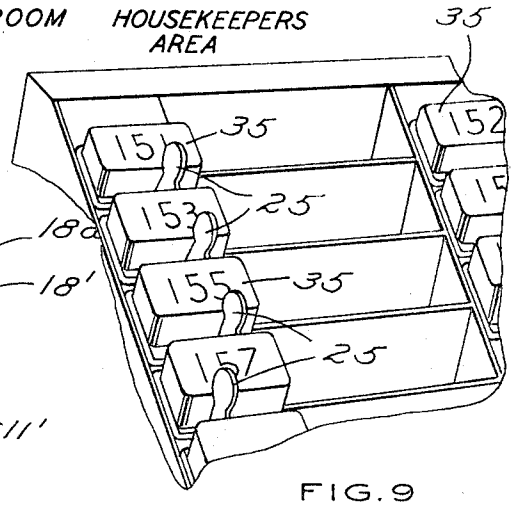


FIG. 9

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PLURAL MODULE CIRCUIT SIGNALING SYSTEM

This invention relates to signaling systems and particularly to switching modules utilized in such systems.

In the handling of rooms and the like in hotels, motels, and similar institutions, it is desirable that the status of the room, namely, occupied, unoccupied, ready for occupancy, and the like, be readily known to a person handling the incoming and outgoing guests.

Accordingly, among the objects of the present invention are to provide a signaling system utilizing a novel switch module which is relatively simple, low in cost, easy to maintain, and effectively operates to indicate the status of the room.

SUMMARY

A signaling system including a plurality of switching modules which include a manually operated member adapted to be selectively actuated to one of four positions and a remotely operated switch which, upon actuation, from a remote position changes the position of the manually operated member. Each switching module further includes indicia means in the form of lightbulbs.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a part sectional elevational view of a switch module embodying the invention.

FIG. 2 is a part sectional rear elevational view of the same.

FIGS. 3—6 are partly diagrammatic views showing portions of the parts in different operative positions.

FIG. 7 is a schematic wiring diagram of the signaling system.

FIG. 8 is a fragmentary part sectional view of a modified form of switch module.

FIG. 9 is a front elevational view of an array of modules.

DESCRIPTION

Referring to FIG. 7, the signaling system embodying the invention comprises the use of a module 10 and associated circuit for each of the rooms in the system. Each circuit includes a switch module 10 that is connected to a remote switch 11 in the room and indicia or lights 12 in the housekeeper's area.

Referring to FIGS. 1 and 2, each switch module 10 comprises a frame 11 that is generally U-shaped in cross section and made of metal. The frame supports a block 12 at one end which, in turn, supports a plurality of leaf contacts 13, 14, 15, 16. As shown diagrammatically in FIG. 4, contacts 14 and 15 are normally in contact with one another.

Frame 11 further supports a frame member 17 on which an electromagnet 18 is supported. In addition, a latch 19 is pivoted to one end of the frame member 17 and yieldingly urged counterclockwise, as viewed in FIG. 1, by a spring 20 extending between one end of the latch and a tab 21 struck outwardly from the frame member 17.

As shown in FIG. 2, a manually operated lever 22 is pivoted by a stud 23 in an elongated slot 24 in the frame 11. A tension spring 25 is connected to the lower end of the lever 22 and to the frame extends between the end of lever 22 and the frame to yieldingly urge the lever downwardly as viewed in FIG. 2. The upper end of the lever is twisted as at 25 to form a gripping portion that extends beyond the frame 11. The frame 11 further includes a cutaway portion 26 defining spaced detents 27, 28 which are engaged by a detent pin 29 on the lever. A protective cap 30 urges the lever against the frame.

By this arrangement, the lever 22 can be manually operated to one of two detent positions A and B and momentarily moved to two other positions C and D beyond detent positions A and B.

The lever 22 includes an operating member or pin 31 having an insulating sleeve 31*a* and extends inwardly between the contacts 14 and 15. When the lever is in position A, contact 15 is held out of engagement with contact 14, as shown in FIG. 3. When the lever 22 is moved to position C, contact 14 engages contact 13. In this position, a latch shoulder 32 in latch 19 engages the upper end of the contact 14 to maintain it in contact with contact 13 as shown in FIG. 5.

When the lever 22 is shifted momentary to position D, contact 15 is moved into momentary engagement with contact 16 while the upper end of the contact 15 lifts the latch 19 out of engagement with the contact 14.

In practice, the positions A, B, C and D represent the following status of the room:

Position A—Occupied

Position B—Checked out

Position C—Latching motion necessary to indicate that the room is checked out

Position D—Reset to position A

As shown in FIG. 1, indicia means in the form of two lightbulbs 33, 34 are mounted on the upper end of the frame and a jewel or translucent cap 35 is provided over the bulb. Referring to FIG. 9, a plurality of switch modules 10 corresponding to the number of rooms are mounted in a panel. Each cap has indicia 36 to identify the room.

Referring to FIG. 7, which is a schematic diagram the contacts and bulbs are electrically connected with the switch 11 in such a manner that momentary closing of the switch 11 will energize the solenoid 18 to disengage the latch 19. Thus, the housekeeper after making the room can actuate the module to return the contact to the position corresponding to availability for occupancy and energize bulb 34. Lightbulbs 37, 38 can be provided at a remote point in the housekeeper's area 12 to indicate the status of the rooms to the housekeeper.

Specifically, when contacts 14, 15 are in engagement, a circuit is completed to lights 33, 37, and when contacts 13, 14 are in engagement, a circuit is completed to lights 34, 38.

In the form of the invention shown in FIG. 8, the switch module includes contacts 13', 14', 15' and 16' as in the previous form of the invention. However, the latching structure differs in that a latch 19' is pivoted to the upper end of contact 14' and is adapted to engage a portion of the frame member 11'. The latch 19' is yieldingly urged downwardly by a leaf spring 20'. A solenoid 18' is adapted to be energized to cause its plunger 18*a* to move upwardly to disengage the latch 19'. Otherwise, the system operates in the same manner as the previously described system.

I claim:

1. In a signaling system, the combination comprising

a plurality of module circuits,

each said module circuit comprising

a frame,

a switch mounted on said frame and having a plurality of at least three contacts,

the first and second of said contacts being normally in contact with one another and the third contact being normally out of contact with the second contact,

electrically energizable indicia on said frame electrically connected to be energized selectively when the second contact is in contact with the first and third contacts, respectively,

a manually operated member mounted on said frame and having at least four positions,

one of said positions holding said first contact out of contact with said second contact,

a second position wherein said first contact is permitted to contact the second contact,

and a third position wherein said second contact is moved into contact with said third contact,

a latch controlled by said manually operated member and operable when said member is moved to said third position to latch said second contact into engagement with said third contact,

an electrically operated means for disengaging said latch,

said manually operated member being operable by movement to a fourth position to disengage said latch,

and a switch remotely positioned with respect to said frame and adapted to be momentarily actuated for completing a circuit to energize said electrically operated means and thereby release said latch.

2. The combination set forth in claim 1 including electrically actuated indicia means energizable in the first and second positions of said manually operated member.

3. The combination set forth in claim 2 including remotely positioned electrically energized indicia means connected to the electrically energized indicia means on said frame and positioned remotely for indicating the energization of the respective first-mentioned indicia means.

4. The combination set forth in claim 2 wherein said electrically energizable indicia means comprises a pair of lights.

5. The combination set forth in claim 1 including detent means for holding said manually operated member in each of said first two positions.

6. The combination set forth in claim 1 including yielding means for returning said manually operated member to one of said first two positions after it has been moved to the third or fourth positions.

7. The combination set forth in claim 1 wherein said manually operated member comprises a lever pivoted to said frame.

8. The combination set forth in claim 7 wherein said frame has detent means cooperating with said lever for holding said lever in each of said first two positions thereof.

9. The combination set forth in claim 8 wherein said lever is pivoted to said frame and yielding means yieldingly urges said lever toward one of said two detent positions.

10. The combination set forth in claim 7 wherein said switches comprise a plurality of leaf elements and a block for supporting said leaf elements.

11. The combination set forth in claim 10 including a fourth switch element which is momentarily engaged during movement of said first contact by the manually operated member when the manually operated member is moved to the fourth position.

12. The combination set forth in claim 7 wherein said frame is generally U-shaped,

said lever being mounted on the exterior of said member,

said contacts being mounted on the interior of said member.

13. The combination set forth in claim 12 wherein said lever includes a detent pin thereon,

said frame having spaced detents therein engaged by said pin.

14. For use in a signaling system, a module comprising

a frame,

a switch mounted on said frame and having a plurality of at least three contacts,

the first and second of said contacts being normally in contact with one another and the third contact being normally out of contact with the second contact,

electrically energizable indicia on said frame electrically connected to be energized selectively when the second contact is in contact with the first and third contacts, respectively,

a manually operated member mounted on said frame and having at least four positions,

one of said positions holding said first contact out of contact with said second contact,

a second position wherein said first contact is permitted to contact the second contact,

and a third position wherein said second contact is moved into contact with said third contact,

a latch controlled by said manually operated member and operable when said member is moved to said third position to latch said second contact into engagement with said third contact,

an electrically operated means for disengaging said latch,

said manually operated member being operable by movement to a fourth position to disengage said latch,

whereby when a circuit is momentarily actuated to energize said electric operated means and said latch is released.

15. The combination set forth in claim 14 including detent means for holding said manually operated member in each of said first two positions.

16. The combination set forth in claim 14 including yielding means for returning said manually operated member to one of said first two positions after it has been moved to the third or fourth positions.

17. The combination set forth in claim 14 wherein said manually operated member comprises a lever pivoted to said frame.

18. The combination set forth in claim 17 wherein said frame has detent means cooperating with said lever for holding said lever in one of said first two positions thereof.

19. The combination set forth in claim 18 wherein said lever is pivoted to said frame and yielding means yieldingly urging said lever toward one of said two detent positions.

20. The combination set forth in claim 14 wherein said switches comprise a plurality of leaf elements and a block for supporting said leaf elements.

21. The combination set forth in claim 20 including a fourth switch element which is momentarily engaged during movement of said first contact by the manually operated member when the manually operated member is moved to the fourth position.

22. The combination set forth in claim 17 wherein said frame is generally U-shaped,

said lever being mounted on the exterior of said member,

said contacts being mounted on the interior of said member.

23. The combination set forth in claim 22 wherein said lever includes a detent pin thereon,

said frame having spaced detents therein engaged by said pin.