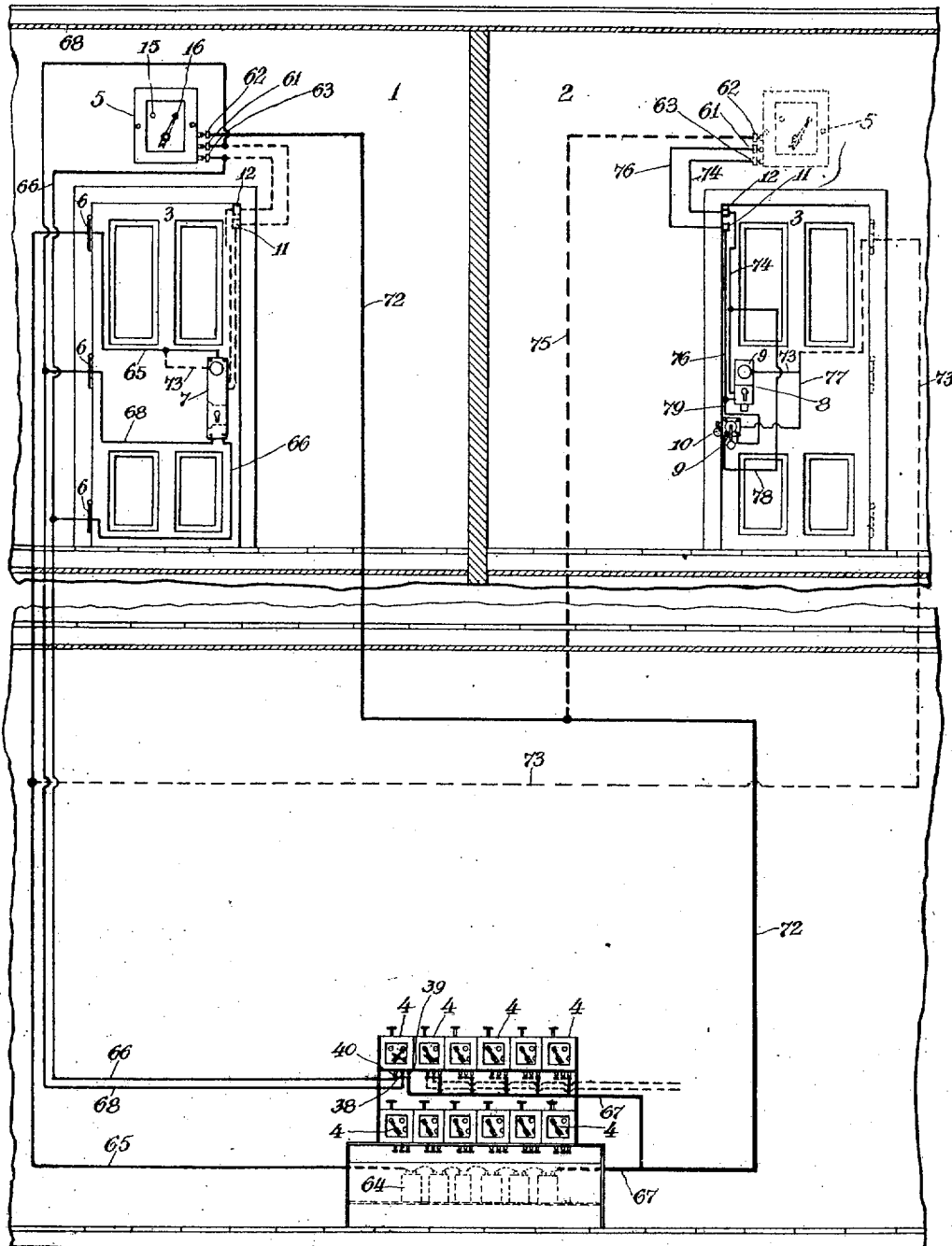


H. J. ALTHER.
ELECTRIC ANNUNCIATING APPARATUS.
APPLICATION FILED MAR. 18, 1909.

976,836.

Patented Nov. 29, 1910.

3 SHEETS—SHEET 1.



Witnesses:
John O. Campbell
W. A. Hutton

Fig. 1 *Henry J. Alther* Inventor.

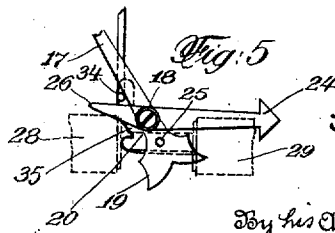
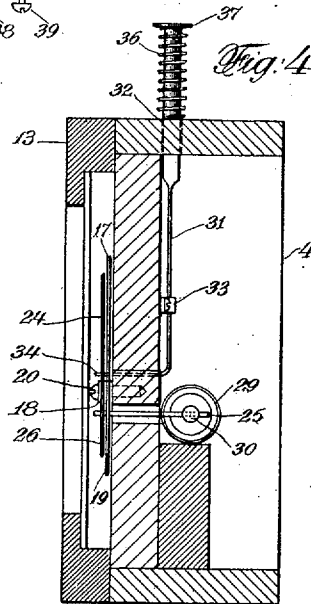
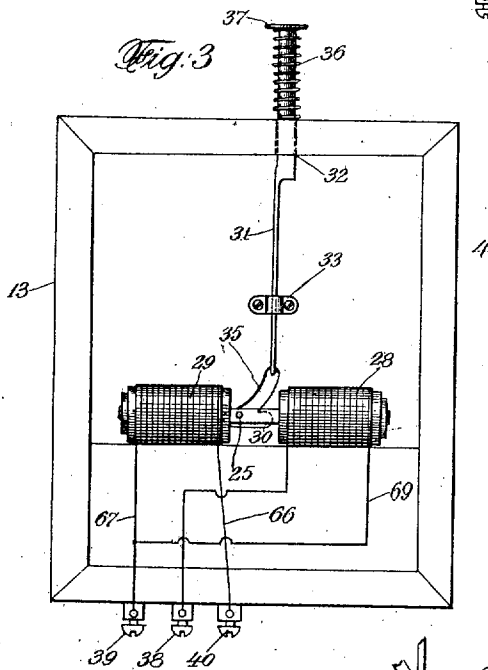
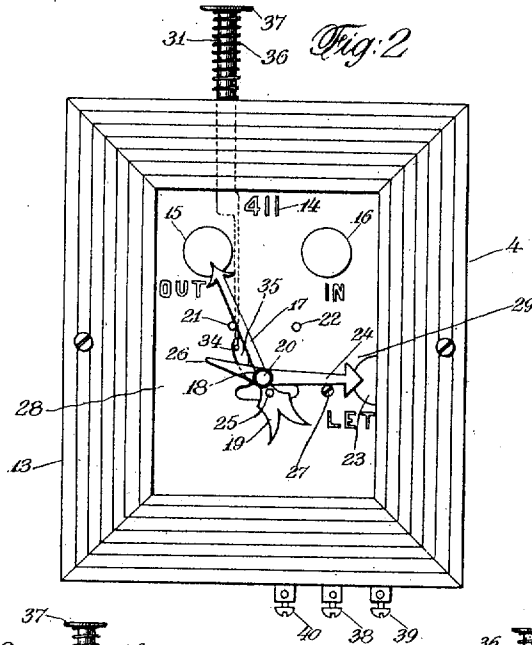
By his Attorneys *Kenyon & Kenyon*

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3 SHEETS—SHEET 2.



Witnesses:
John O. Gumples
W. A. Hutton

Henry J. Altther,
Inventor

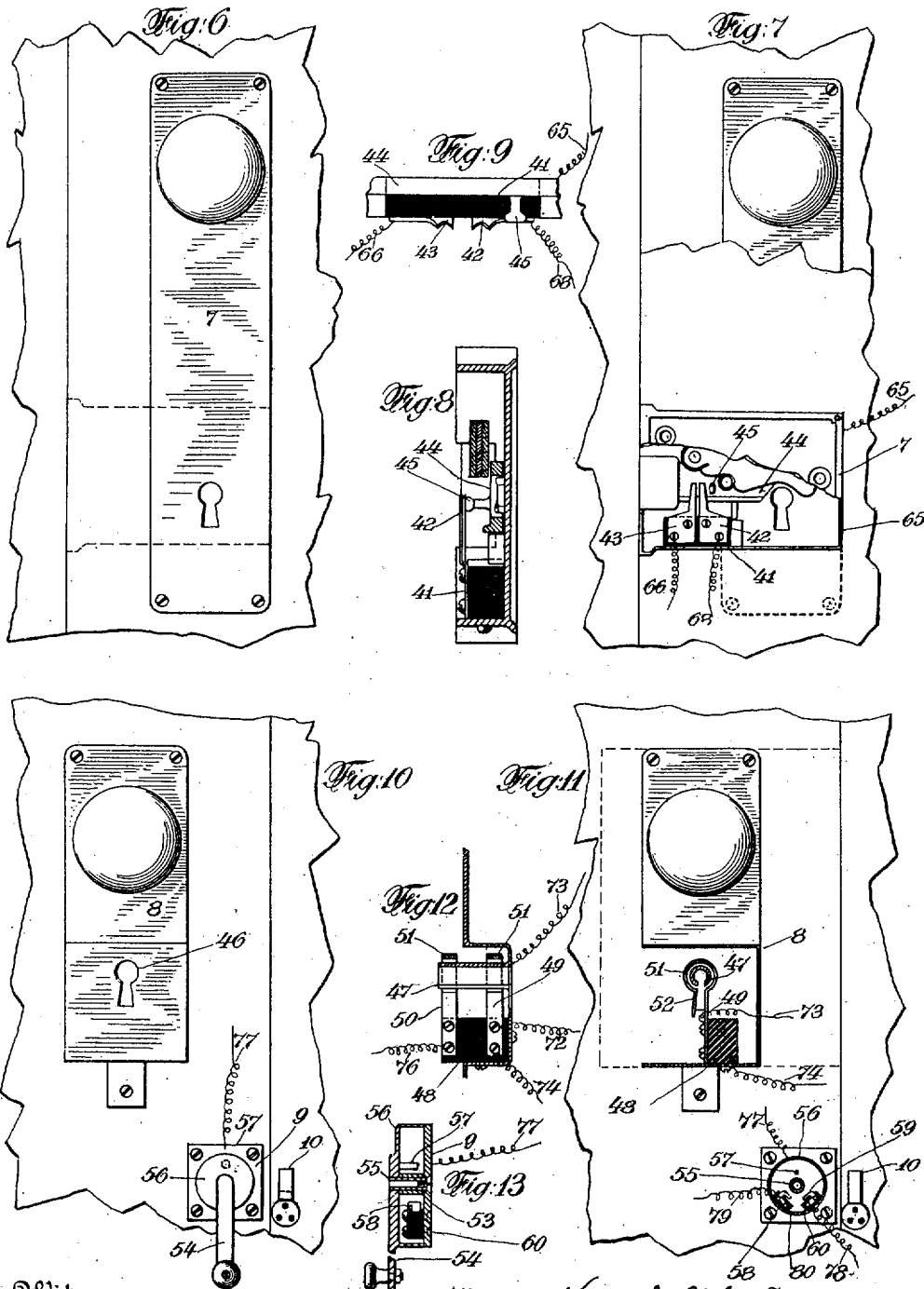
By his Attorneys Kenyon & Kenyon

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3 SHEETS—SHEET 3.



Witnesses:
John O. Gendler
W. A. Hutton

Henry J. Alther Inventor
By his Attorneys, Henry J. Alther & Son

UNITED STATES PATENT OFFICE.

HENRY JACOB ALTHERR, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO
GEORGE W. GILL, OF MEDFORD, MASSACHUSETTS.

ELECTRIC ANNUNCIATING APPARATUS.

976,836.

Specification of Letters Patent.

Patented Nov. 29, 1910.

Application filed March 18, 1909. Serial No. 484,259.

To all whom it may concern:

Be it known that I, HENRY JACOB ALTHERR, a citizen of the United States, and a resident of the city of Boston, county of Suffolk, State of Massachusetts, have invented certain new and useful Electric Annunciating Apparatus, of which the following is a specification.

My invention relates to electric annunciators and means for operating the same.

My invention is particularly adapted for indicating occupancy or non-occupancy of an apartment or room; whether or not an apartment or room is taken or let; and for similar announcements.

In hotels it is very desirable that at the clerk's or similar office the fact of the occupancy or non-occupancy of a room or apartment should be instantly indicated, and either at said office or at the office of the manager, should also be instantly indicated the fact of a room or apartment being taken or let.

I have shown in the accompanying drawings an embodiment of my invention, to indicate the occupancy and non-occupancy of a room or apartment, and the letting and non-letting of the same, in which—

Figure 1 is a diagrammatic view illustrating in section the lower floor of a building containing an electric battery and a number of annunciators, and the outside of a door to a room or apartment and the inside of a door to a room or apartment, and an annunciator outside of each of said doors, and the several circuits connecting the battery with the locks and bolts on the doors and with the annunciators. Fig. 2 is a front elevation of one of the annunciators, such as is shown in the lower part of Fig. 1, and adapted to be used in the manager's office of the hotel or other building. Fig. 3 is a rear elevation of the same. Fig. 4 is a central vertical section of the annunciator shown in Figs. 2 and 3. Fig. 5 is a detail showing the annunciator hands and means for operating the same. Fig. 6 is a front elevation greatly enlarged of the lock on the outside of a door, such as is shown in the upper left hand portion of Fig. 1, but near the opposite edge of the door to that shown in Fig. 1. Fig. 7 is a similar view, but with part of the lock casing broken away so as to show the operative parts of the lock. Fig.

8 is a vertical section enlarged of the lock shown in Fig. 7. Fig. 9 is an enlarged detail of the two contacts of the lock shown in Fig. 7, and the circuit closer. Fig. 10 is a front elevation greatly enlarged of the lock and part of the inside of a door such as is shown in the upper right-hand corner of Fig. 1, but with the lock and bolt near the edge of the door opposite to that shown in said figure. Fig. 11 is a similar view to Fig. 10, but with the front plates of the lock and bolt removed so as to show the electrical contacts. Fig. 12 is a vertical section through the electric contacts shown in Fig. 11. Fig. 13 is a vertical section greatly enlarged of the movable portions of the bolt shown in Figs. 10 and 11. Fig. 14 is a key such as may be used for making contact with the electric contacts shown in Figs. 11 and 12.

Similar characters represent like parts in all the figures.

Referring to Fig. 1, 1 represents a portion of the building in which is seen the outside of a door and an annunciator over the same. This may be in the hall of a hotel or other building.

2 represents a portion of a hotel or other building such as the inside of a room or apartment, showing the inside of a door. It may be the same door as shown in the portion 1 of the building or the inside of some other door. Said doors are represented by 3.

4 is an annunciator, several being shown in a portion of the building different from 1 and 2, as for example, the manager's room of a hotel. I have shown a number of said annunciators, there being one for each room or apartment occupied or to be occupied by tenants.

5 represents an annunciator to be situated preferably above the door outside of the apartment. The annunciators 5 are very similar to the annunciators 4, but not having all the features of annunciators 4.

6 represents the hinges of the doors 3, 7 the casing of the outer lock, and 8 the casing of the inner lock of said doors.

9 is a support for the movable portions of the bolt on the inside of the door 3, and 10 is the holding portion of the same.

11 are ordinary spring contacts on the edge of the door 3 for making electrical

connection with terminals or contacts 12 in the frame of the door when the same is closed.

13 is the frame of the annunciator, see 5 Figs. 2, 3 and 4, 14 is the room or apartment designation on the face of the annunciator, shown in Fig. 2 as "411."

15 is a designation on the face of the annunciator 4 marked "Out," and 16 is a designation on the face of the annunciator marked "In".

17 is the indicator or annunciator hand which is fixed to a sleeve 18 and provided with an extension 19 extending from said sleeve in a direction opposite to that of the 15 hand 17. The sleeve 18 is journaled to a shaft 20 which passes through said sleeve and face of the annunciator.

21 and 22 are pins extending outwardly 20 from the annunciator face, and adapted to stop the hand 17 at the proper places to indicate "Out" and "In" respectively.

23 is a designation on the face of the annunciator marked "Let".

25 24 is an indicator, or annunciator hand, secured to the shaft 20.

25 is a pin extending through the extension 19 of the arm 17, adapted to ride against the cam shaped rearward extension 30 26 of the arm 24, so that when said extension moves in a direction away from the designation "Let", the hand 24 will be forced over so as to point to or indicate the designation "Let".

35 27 is a stop extending from the face of the annunciator to limit the downward movement of the hand 24.

28 and 29 are two solenoid magnets secured to the annunciator 4 back of the base of the 40 same, and 30 is a core extending into said magnets to be drawn respectively by the same. The back of the pin 25 is secured to said core.

31 is a vertically movable rod extending 45 through a vertically guiding opening 32 in the frame 13 and through a guide 33 below said opening 32. The lower end of said rod 31 is provided with a forward extension 34, which projects over the extension 26 of the arm 24, passing through an inclined slot 50 35 in the face of the annunciator. The upper portion of the rod 31 extends beyond the frame 13, and is surrounded above said frame by a tension spring 36, a head 37 on the end of said rod holding said spring in place.

38, 39 and 40 are electric terminals extending beyond the frame 13.

41 is a block of electrical insulation secured inside of the lock casing 7. Secured to said block are two spring electrical contacts, 42 and 43, secured to said block a short distance from each other.

65 44 is the bolt of the lock, provided with a circuit closer or contact 45, for making elec-

trical connection alternately with the contacts 42 and 43. In Figs. 7 and 9 of the drawings the circuit closer 45 is shown back and out of contact with contact 42. The other parts of the lock in casing 7 are those 70 of an ordinary lock and form no part of this invention. I have shown the casing 7 with its lock, contacts, etc., as attached to the outside of the door 3.

Secured to the front portion of the casing 75 8, around and close to the upper part 46 of the keyhole, is a tube 47 of electric conducting material, provided with a longitudinal slot in its lower portion, see Fig. 11, so that when the key is inserted through the key- 80 hole with the shank of the key in said tube, the lateral portion or bit of said key will pass through the slot, and the key will make contact with said tube.

48 is a block of insulation inclosed in the 85 casing 8 and provided with and to which are secured two arms 49, 50, of electric conducting material, said arms being separated from each other, and extending around, as at 51, the tube 47, and provided with down- 90 wardly extending spring tongues 52.

Extending outwardly from the support 9 of the bolt, and on the inside of the door, is a hub or fixed sleeve 53.

54 is the bolt proper, which is provided 95 with a hollow spindle 55 extending into the fixed sleeve 53 and which sleeve forms a journal bearing for said spindle.

56 is a cap secured to or forming part of the bolt 54, and adapted to rotate when said 100 bolt is turned.

57 is a pin of electric conducting material secured to the cap 56 and extending inward and toward the support 9.

58 and 59 are two spring terminal con- 105 tacts separated from each other and secured to insulated blocks 60, secured to the support 9. The cap 56 covers up said contacts, insulated blocks and pin. The cap 56 is held in place with its spindle 55 inside of 110 sleeve 53, in any appropriate manner, as for example, by means of a screw passing through the support 9 and into the spindle 55, as shown in Fig. 13.

Fig. 14 illustrates the key which is used 115 as a circuit closer in the lock 8. The spindle of the key and its point making contact with the tube 47, and the bit of the key making contact respectively with the tongues 52 of the contacts 49 and 50. 120

The annunciator 5, such as is to be used over the door on the outside of a room, dispenses with the designation "Let", and the indicator hand 24, 26 and its connecting parts, the stop 27, the rod 31 and its con- 125 nections.

61, 62 and 63 are three terminals, 61 and 63 being connected with one pole of the battery 64, and 62 being connected with the opposite pole of said battery. 130

When the door is locked on the outside by the outside lock 7, the indicator hand 17 will point to the indicator 15 for "Out" both in the manager's office, (as shown by all the annunciators except one at the bottom of Fig. 1,) and on the annunciator over the door.

When the door 3 is unlocked from the outside by the outside lock 7, the indicator hand 17 will point to the indication 16 for "In" on the annunciators both in the manager's office and on the place over the door of the room, as will be seen on the left-hand upper indicator 4 at the manager's office and the indicator 5 at the upper left-hand portion of Fig. 1. The movement of the arm 17 in turning to the designation "In" at 16, will, by means of the pin 25 riding over the arm 26 (see Fig. 2) force the arm 24 to the right, and cause said arm to point to the designation 23, "Let". This will be indicated in the manager's office, as shown on the upper left-hand indicator on the lower part of Fig. 1. Said annunciator indicates to the manager that the particular room that said annunciator connects with, is taken or let, and also that its tenant is occupying said room.

When the key is inserted in the hole of the lock 7, and the bolt 44 is turned back to unlock the door, the circuit closer 45 will first come in contact with the terminal contact 43, said circuit closer will then become disconnected with contact 43 and then become connected with the contact 42 and then clear said contact. The making electric connection with the contact 43 will make a circuit from the battery 64 through the line 65 and hinge 6 to the lock 7 and then to the bolt 44 and circuit breaker 45, then to the contact 43 and from thence to the line 66 to the solenoid 29 of annunciator 4, and then through line 67 to battery 64, and from the line 66 to the terminal 63 of the annunciator 5, and from thence to the solenoid 29 of said annunciator, then to the terminal 62, and from thence through the line 72 to the opposite pole of the battery 64, thus completing the circuit through the solenoids 29 of both annunciators 4 and 5, and pulling the core 30 and the pin 25, which would tend to draw the hand 17 in the direction of the "Out" designation 15; but as the hand 17 is already pointing at the indication 15, the completing of said circuit will have no effect on said hand or the hand 17. The movement of the bolt to unlock the door will next cause the circuit closer 45 to break the first circuit and then to come in contact with the spring terminal 42, and the circuit will then pass from the battery 64 through the line 65, lock 7, bolt 44, circuit closer 45, terminal 42, line 68, terminal 38 and annunciator 4, solenoid 28 of said annunciator, line 69, line 67, to the opposite pole of the battery, thus completing the circuit through

said solenoid. A circuit is also made through line 68 and terminal 61, to the solenoid 28 of annunciator 5, and from thence through terminal 62 and lines 72 and 67 to the opposite pole of the battery, thus completing said circuit. The completion of the circuits through the solenoids 28 in both annunciators will cause the cores 30 of the same to be drawn toward said solenoids, thereby forcing the hands 17 of both of said annunciators over to the "In" designation 16, and so that both of said annunciators will announce that the tenant is in his room or apartment. The movement of the hand 17 in the annunciator 4 over to the "In" designation, will cause the pin 25 to ride over the cam edge of the arm 26, and thus force the arm 24 over to the "Let" designation, so that the annunciator 4 will also announce that the room that said annunciator connects with, is let. Just as soon, in unlocking the door, as the circuit closer 45 passes beyond the contact 42, all the circuits are broken. When the occupant of the room leaves his room and starts to lock the door, the circuit closer 45 comes in contact with the terminal 42, and the circuit is made through the solenoids 28 of both annunciators, but as the cores 30 have already been drawn into or toward said annunciators and the hand 17 to the "In" designation, said annunciators will not be affected. The next movement of the bolt will cause the circuit closer 45 to come in contact with the terminal 43, and the circuit will then be made through the solenoids 29 of both annunciators 4 and 5, as has been above described, the cores 30 will then be drawn into or toward the solenoids 29, and the arm 17 of each of said annunciators will be forced over to the "Out" designation 15, as shown in Fig. 2. The annunciators 4 and 5 will announce that the tenant is out of his apartment or room. If the manager has been informed that the room or apartment is given up, he presses down the rod 31 of the annunciator 4, and through its forward extension 34, pressing down on the extension 26 of the arm 24 will draw said arm up and away from the "Let" designation 23, so that there will not be any announcement on the annunciator 4 that the particular room or apartment is let.

When the tenant is inside of his room, if he inserts the key, see 70, into keyhole 46, the shank of said key will come in contact with the tube 47, and the bit 71 will first come in contact with the contacts 49, 52, thus making the circuit from the line 65, 73, lock 8, tube 47, key 70—71, contacts 49 and 52, line 74, annunciator 5, solenoid 29 of said annunciator, line 75 and return line 72, thus completing the circuit through said solenoid, and drawing the hand 17 over to the "Out" indication 15. The further insertion of the

key 70, 71 will pass the contacts 49, 52, and the circuit will be broken, thus deenergizing the solenoid 29. A still further insertion of the key will cause the same to contact with the terminals 50, 52, and the circuit will then pass through lines 65, 73, to lock 8, tube 47, key 70, 71, contacts 50, 52, to line 76, and thence to annunciator 5 and through solenoid 28 in said annunciator, then back through line 75 and return line 72, thus completing the circuit through solenoid 28 and drawing the arm 17 over to the "In" designation 16. The annunciator will then announce that the tenant is occupying his room. By a little further insertion of the key the bit 71 will pass the contacts 50, 52 and the circuit will be broken and the solenoid deenergized. The key is then in a position to lock the door. When the tenant desires to leave the room, the door has to be unlocked, and in taking out the key, the same passing the two contacts 50 and 49 will first complete the circuit through 50 and the solenoid 28, but the indicating hand 17 being at "In" it will not be moved. When the key comes in contact with terminal 49 the circuit will be completed through solenoid 29, and the hand 17 will be forced over to the "Out" designation. The withdrawal of the key from the key-hole 49, will break the circuit, and the door being unlocked, the annunciator will indicate that the tenant is out.

If the tenant instead of using the key to fasten the door when he is in his room, turned the bolt 54, the pin 57 will first come in contact with terminal 59, and the circuit will be made through lines 65, 73, 77, bolt support 9, cap 56, pin 57, contact 59, lines 78 and 74, to annunciator 5 and the solenoid 29 of said annunciator, and return lines 75 and 72, thus completing the circuit through solenoid 29, and drawing the hand 17 to the "Out" designation 15. The pin 57 will next come in contact with the terminal 58, and the circuit will be completed through lines 65, 73, 77, support 9, cap 56, pin 57, terminal 58, lines 79 and 76, to annunciator 5, and through the solenoid 28 and back through the return lines 75 and 72, thus completing the circuit through said solenoid and forcing the hand 17 over to the "In" designation 16. When the pin 57 passes the contact 79 the circuit will be broken. When the bolt is turned in the reverse direction or unbolted, the above operation will be reversed, and when the bolt is thrown back, the hand 17 will be forced to the "Out" designation 15, and the door being unfastened, the annunciator will announce that the tenant has left his room.

It will, of course, be obvious that any of the fastening devices above described, that is, the lock 7 on the outside of the door, or the lock 8 on the inside of the door, or the bolt 10 on the inside of the door, may be

used without the others. It is also obvious that if the inside fastening or fastenings are used without the outside ones, an annunciator like Fig. 4 can be used in the manager's office in addition to the annunciator 5 outside the apartment. It will also be evident that either the annunciator 4 or the annunciator 5 can be used without the other.

From the above it will be clearly seen that the ordinary act of the occupant of the room, especially of a hotel, when he enters or leaves the same will immediately indicate on the annunciator or annunciators the fact that the tenant is occupying his room or has left it.

It will of course be evident that the precise means as above described and shown in the drawings need not be used to carry out my invention, as many other means may be used for this purpose.

What I claim as new and desire to secure by Letters Patent is:—

1. The combination of an annunciator to indicate whether a room is occupied or unoccupied, a door to said room provided with an opening, a plurality of electric circuits connected with said annunciator so as to operate the same, and make and break devices in said circuits connected with said door, and means for operating said devices and for insertion within said opening, whereby the operation of said means makes and breaks said circuits and operates the annunciator.

2. The combination of an annunciator to indicate whether a room is occupied or unoccupied, a door to said room, a lock casing secured to said door, and provided with an opening, a plurality of electric circuits connected with said annunciator so as to operate the same, and make and break devices in said circuits and inclosed within said casing, whereby means may be inserted within said opening and caused to operate said devices to make and break said circuits and operate the annunciator.

3. The combination of an annunciator to indicate whether a room is occupied or unoccupied, a door to said room, a lock casing secured to said door, and provided with an opening, a plurality of electric circuits connected with said annunciator so as to operate the same, and make and break devices in said circuits and inclosed within said casing, and means for operating said devices and for insertion within said opening, whereby the circuits may be made and broken and the annunciator may be operated.

4. The combination of an annunciator to indicate whether a room is occupied or unoccupied, a door to said room, a lock casing secured to said door, and provided with an opening, a plurality of electric circuits connected with said annunciator so as to operate the same, terminal contacts connected

respectively with the two circuits of the annunciator, and inclosed within said casing, and a contact secured to the bolt in the casing and adapted to contact with said terminals, whereby the operation of the bolt will make and break said circuits and operate the annunciator.

5. The combination of an annunciator to indicate whether a room is occupied or unoccupied, a door to said room, a lock casing secured to said door, and provided with an opening, a plurality of electric circuits connected with said annunciator so as to operate the same, terminal spring contacts connected respectively with the two circuits of the annunciator, and inclosed within said casing, and a contact secured to the bolt in the casing and adapted to contact with said terminals, whereby the operation of the bolt will make and break said circuits and operate the annunciator.

6. The combination of an indicator to indicate whether a room is occupied or unoccupied, a locking device for the door of said room, a plurality of electric circuits connected with said indicator so as to operate the same, make and break devices in said circuits connected with the locking device, whereby the operation of the locking device makes and breaks said circuits and operates said indicator, and an additional indicator, constructed, when in a certain position, to be automatically moved to another position to indicate that the room has been let, when the first indicator is moved to indicate that the room is occupied.

7. The combination of an indicator to indicate whether a room is occupied or unoccupied, a locking device for the door of said room, a plurality of electric circuits connected with said indicator so as to operate the same, make and break devices in said circuits connected with the locking device, whereby the operation of the locking device makes and breaks said circuits and operates said indicator, and an additional indicator, constructed, when in a certain position, to be automatically moved to another position when the first indicator is moved to one of its positions.

8. The combination of an annunciator to indicate whether a room is occupied or unoccupied, a locking device for the door of said room, a plurality of electric circuits, an electro-magnet forming part of each circuit, a movable indicator arranged to be operated by said magnets, a circuit closer connected with the locking device for closing and breaking the circuits through the respective magnets, and thereby operating the indicator, and an additional indicator arranged to be operated by the movement in one direction of the magnet operating indicator.

9. The combination of an annunciator to indicate whether a room is occupied or un-

occupied, a locking device for the door of said room, a plurality of electric circuits, an electro-magnet forming part of each circuit, a movable indicator arranged to be operated by said magnets, a circuit closer connected with the locking device for closing and breaking the circuits through the respective magnets, and thereby operating the indicator, an additional indicator arranged to be operated by the movement in one direction of the magnet operating indicator, and means for returning said additional indicator to its former position.

10. The combination of an annunciator to indicate whether a room is occupied or unoccupied, a locking device for the door of said room, a plurality of electric circuits, an electro-magnet forming part of each circuit, a movable indicator arranged to be operated by said magnets, a circuit closer connected with the locking device for closing and breaking the circuits through the respective magnets, and thereby operating the indicator, and a movable device constructed, when in a certain position, to be moved to another position by the movement of said indicator to a certain position.

11. The combination of an annunciator to indicate whether a room is occupied or unoccupied, a locking device for the door of said room, a plurality of electric circuits, an electro-magnet forming part of each circuit, a movable indicator arranged to be operated by said magnets, a circuit closer connected with the locking device for closing and breaking the circuits through the respective magnets, and thereby operating the indicator, a movable device constructed, when in a certain position, to be moved to another position by the movement of said indicator to a certain position, and means for returning said device to its first position.

12. The combination of an annunciator to indicate whether a room is occupied or unoccupied, a locking device for the door of said room, a plurality of electric circuits, an electro-magnet forming part of each circuit, a movable indicator arranged to be operated by said magnets, a circuit closer connected with the locking device for closing and breaking the circuits through the respective magnets, and thereby operating the indicator, and a movable device constructed, when in a certain position, to be moved to another position by said indicator when moving to a certain position.

13. The combination of an annunciator to indicate whether a room is occupied or unoccupied, a locking device for the door of said room, a plurality of electric circuits, an electro-magnet forming part of each circuit, a movable indicator arranged to be operated by said magnets, a circuit closer connected with the locking device for closing and breaking the circuits through the respective

magnets, and thereby operating the indicator, a movable device constructed, when in a certain position, to be moved to another position by said indicator when moving to a
5 certain position, and means for returning said device to its first position.

In testimony whereof, I have signed my

name to this specification, in the presence of two subscribing witnesses.

HENRY JACOB ALTHER.

Witnesses:

W. N. MOFFETT,
GEO. W. GILL.