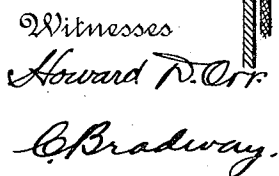


1,052,389.

6 SHEETS--SHEET 1.



William Tribble, Inventor,

By

E. G. Siggers.
Attorney

W. TRIBBLE.
ANNUNCIATOR AND SIGNAL SYSTEM.
APPLICATION FILED DEC. 23, 1909.

1,052,389.

Patented Feb. 4, 1913.

5 SHEETS-SHEET 2.

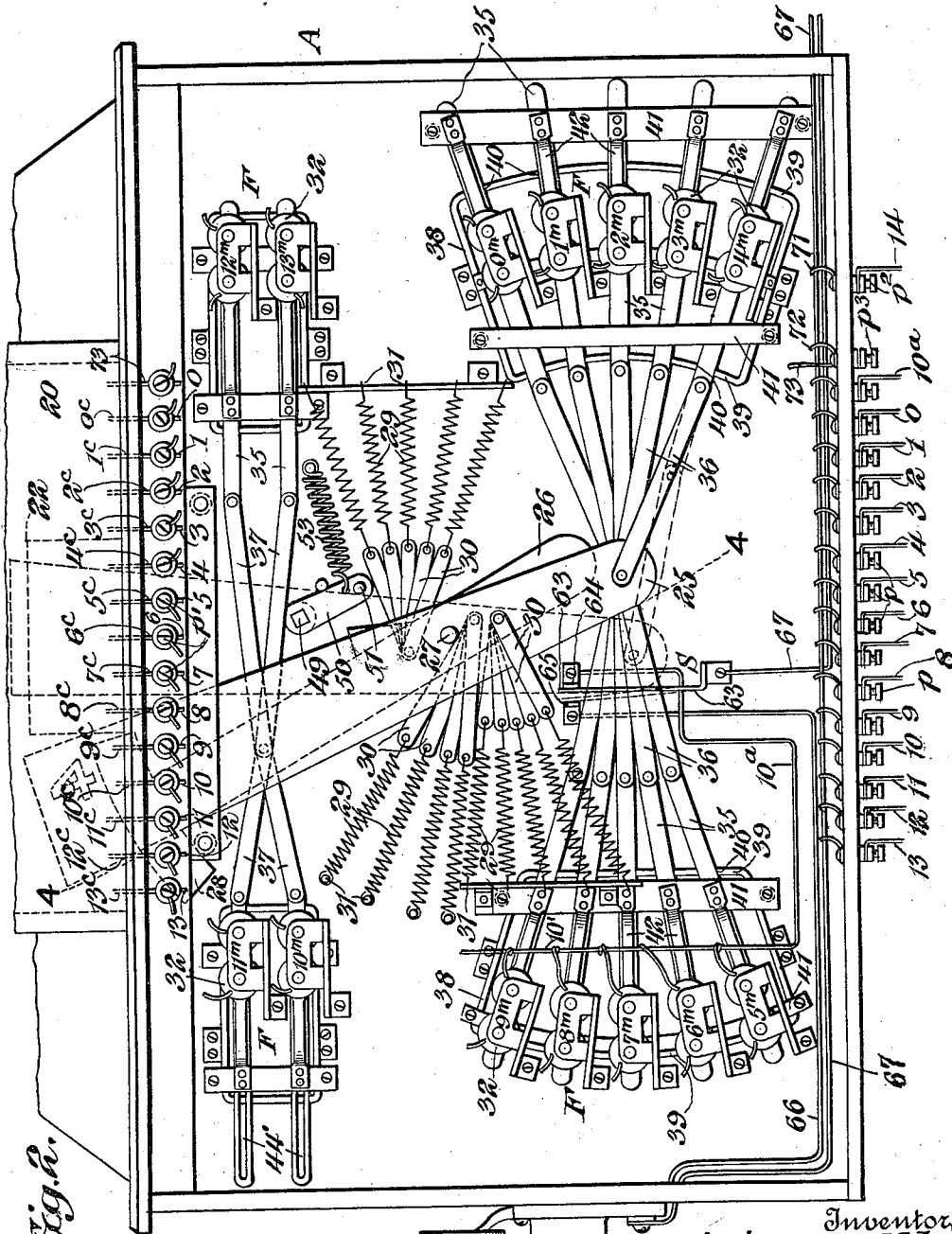
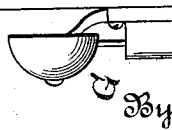


Fig. 2.

Witnesses

Howard D. Orr.

C. Bradley.



Inventor,
William Tribble.

E. J. Siggers.

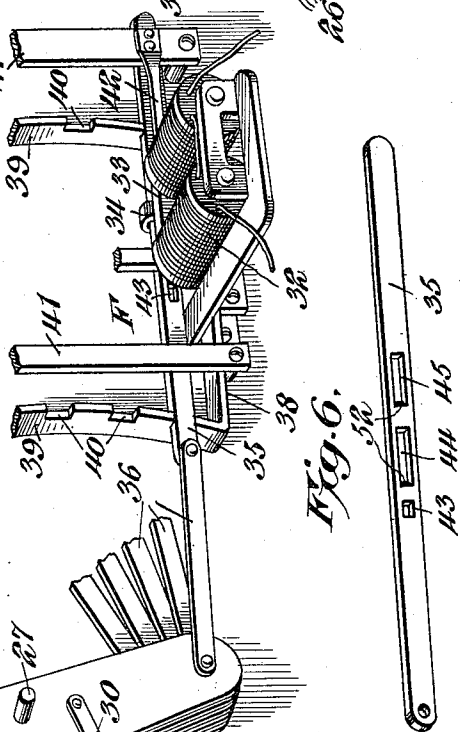
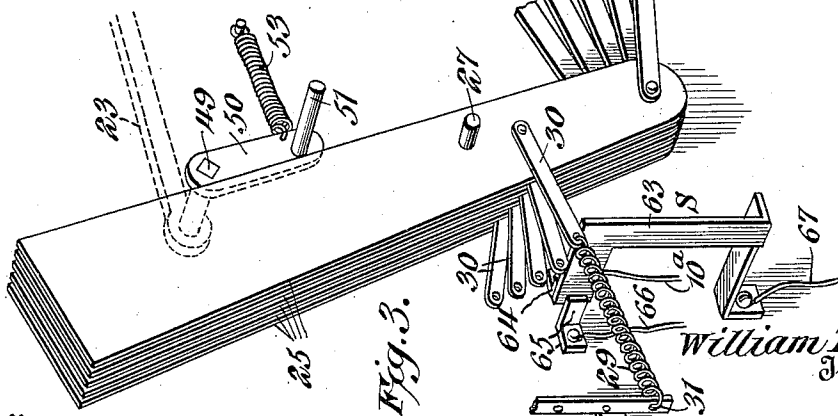
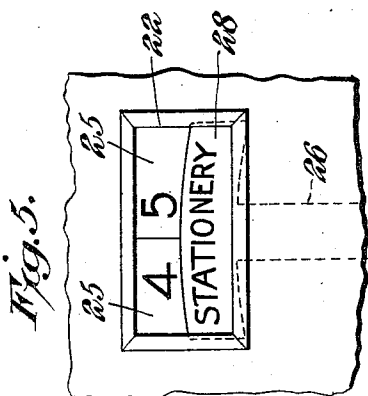
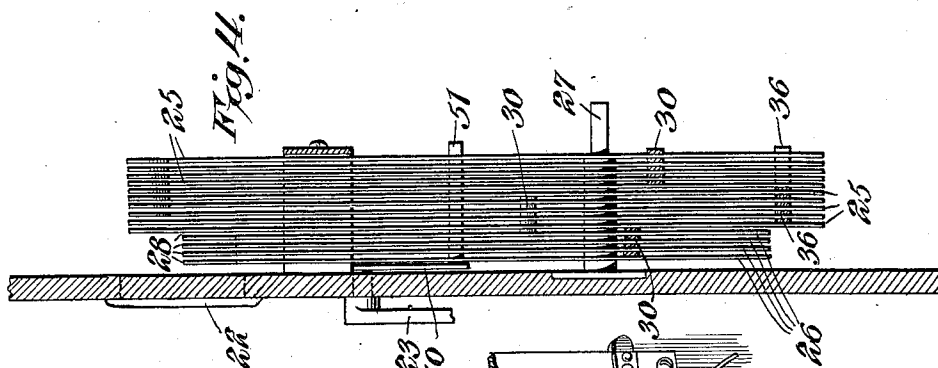
Attorney

W. TRIBBLE.
ANNUNCIATOR AND SIGNAL SYSTEM.
APPLICATION FILED DEC. 23, 1909.

1,052,389.

Patented Feb. 4, 1913.

5 SHEETS-SHEET 3.



Witnesses
Howard D. Orr.
C. Bradley.

William Tribble,
Inventor,

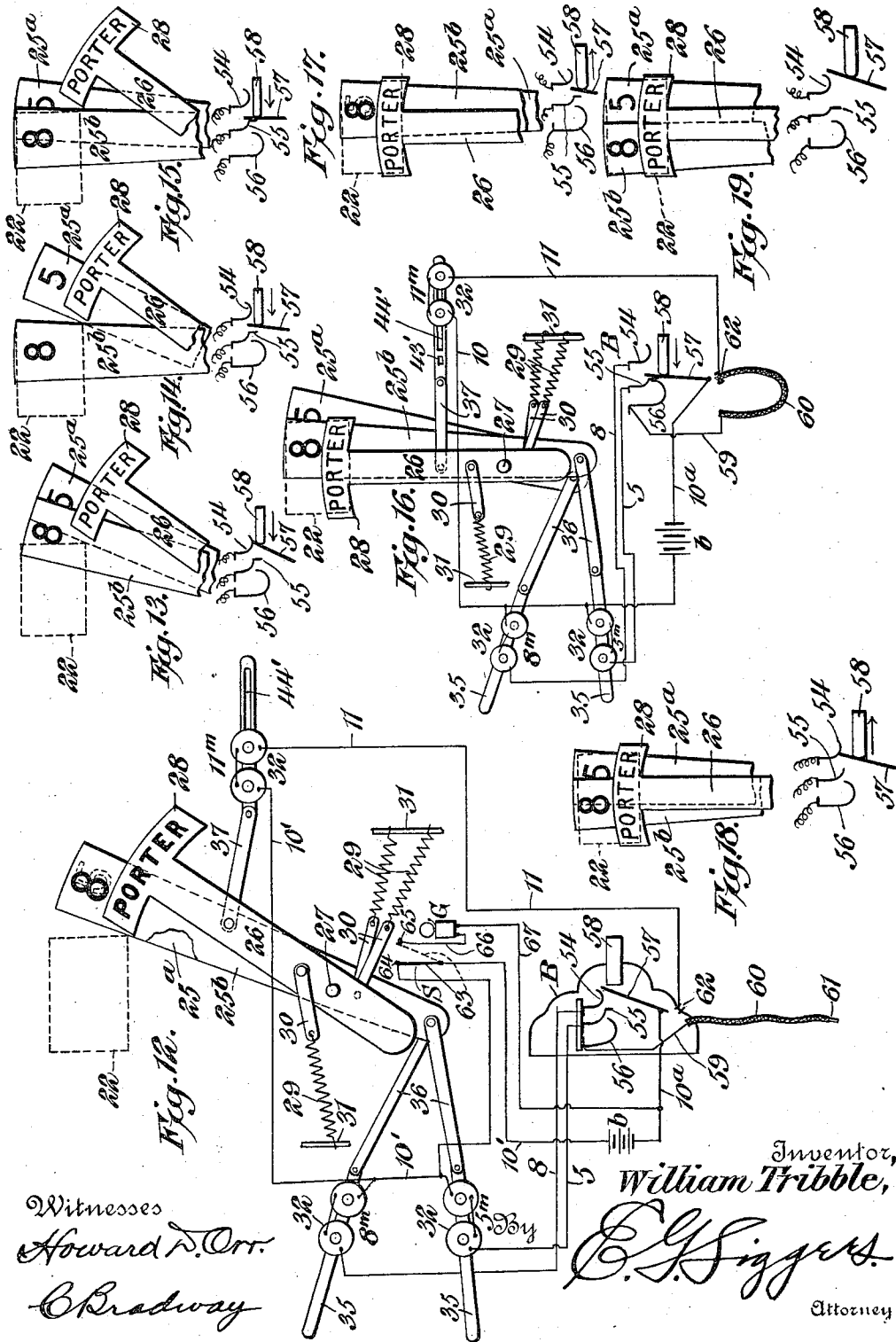
C. G. Siggers
Attorney

W. TRIBBLE.
ANNUNCIATOR AND SIGNAL SYSTEM.
APPLICATION FILED DEC. 23, 1909.

Patented Feb. 4, 1913.

5 SHEETS—SHEET 4.

1,052,389.



Witnesses
Howard D. Orr.
C. Bradley

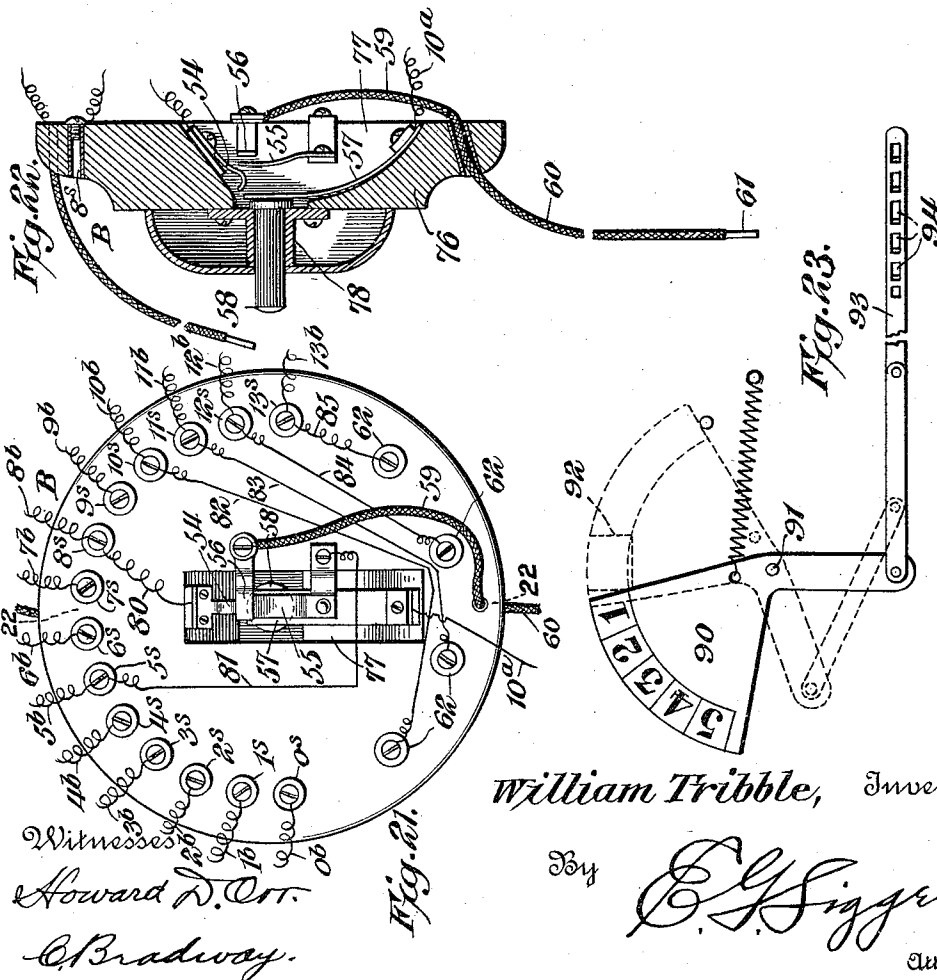
Inventor,
William Tribble,
C. G. Siggers.
Attorney

W. TRIBBLE.
ANNUNCIATOR AND SIGNAL SYSTEM.
APPLICATION FILED DEC. 23, 1909.

1,052,389.

Patented Feb. 4, 1913

5 SHEETS—SHEET 5.



William Tribble, Inventor,

By

E. J. Siggers
Attorney

Witnesses
Howard D. Orr.
C. Bradley.

UNITED STATES PATENT OFFICE.

WILLIAM TRIBBLE, OF ALTON, ILLINOIS, ASSIGNOR OF ONE-FIFTH TO JOSEPH R. DURBAN, OF WEBSTER GROVES, MISSOURI.

ANNUNCIATOR AND SIGNAL SYSTEM.

1,052,389.

Specification of Letters Patent.

Patented Feb. 4, 1913.

Application filed December 23, 1909. Serial No. 534,731.

To all whom it may concern:

Be it known that I, WILLIAM TRIBBLE, a citizen of the United States, residing at Alton, in the county of Madison and State of Illinois, have invented a new and useful Annunciator and Signal System, of which the following is a specification.

This invention relates to annunciator systems designed for use in hotels, hospitals, institutional dormitories or the like, for enabling the guests or occupants of the various rooms to signal to the office in making known their wants.

The invention has for one of its objects to provide a system of this character which is extremely simple and inexpensive to manufacture and install, thoroughly reliable and efficient in use, and so designed that the signaling can be carried on in a very simple manner.

Another object of the invention is the provision of an annunciator system including a set of vanes numbered from 0 to 9, with operating means whereby any combination of vanes can be produced for exhibiting room numbers from 1 to 99, or including two sets of vanes each numbering from 0 to 9, whereby combinations from 1 to 999 can be produced for the purpose of displaying the numbers of the rooms of the hotel, and in connection with the number vanes are arranged a set of word vanes any of which can be simultaneously displayed with the room number to indicate the wants of the occupant of that room from which the message is sent, such additional vanes bearing appropriate names, as "Porter", "Stationery", "Water", "Hot water", "Fire", etc.

Another object of the invention is to provide a novel actuating means for the various vanes and a simple arrangement of circuit connections and push buttons for the various rooms so that the number and name-bearing vanes can be operated simply by the pushing of buttons in the different rooms.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention, Figure 1 is a front view of the annunciator and clock apparatus in connection with a fragmentary diagram of the circuit connections between the apparatus and the various push buttons of the rooms. Fig. 2 is an enlarged rear view of the annunciator box or cabinet with the back thereof removed to show the operating mechanism in elevation. Fig. 3 is a fragmentary perspective view showing one of the vane-operating devices complete. Fig. 4 is a sectional view on line 4—4, Fig. 2. Fig. 5 is a fragmentary front view showing a combination of number vanes and a name vane displayed through the view opening of the cabinet. Fig. 6 is a perspective view of one of the ratchet bars for the vanes. Figs. 7 to 11, inclusive, are detail sectional views showing the electro-magnetically operated escape-ment device operating on the ratchet bars of the vanes, the said views showing the successive steps in the movement of the ratchet bar. Fig. 12 is a diagrammatic view of the circuit connections for the magnets of two number vanes and of a name vane, the vanes being in normal position and the push button being open. Figs. 13 to 19, inclusive, are detail views illustrating the various steps in the movements of the vanes from normal to announcing position, together with the successive contact connections produced by the movement of the push button. Fig. 20 is a perspective view of one of the escapements. Fig. 21 is a rear view of the push button device for the guests' rooms. Fig. 22 is a vertical section on line 22—22, Fig. 21. Fig. 23 is a detail view of a modified form of number vanes for an annunciator system adapted to a small hotel.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawings, and more particularly to Fig. 1, A designates a combined clock and annunciator which is preferably located in the office of the hotel or other building where the system is installed, and leading from the clock and annunciator is a cable C composed of a suitable number of wires according to the number of rooms that are to have signal communication with the

office, and in such rooms are located push buttons or switch devices B. The apparatus A may be of any approved construction and comprises, in the present instance, a clock 20 and an annunciator 21 disposed under the clock, and this annunciator is in the form of a box or cabinet which contains the various vanes and operating means therefor. In the front face of the clock or cabinet is a view opening 22 through which the annunciator vanes are displayed when any guest sends in a signal. After any vane or combination of vanes has been thrown into view, the clerk can re-set the vanes by means of a crank or lever 23 which is pressed downwardly against the stop 24, the lever having means within the box or cabinet to engage the vanes to restore them to normal position in a manner to be hereinafter explained.

By reference to Figs. 2 and 4, it will be observed that two sets of vanes 25 and 26 are arranged in the cabinet 21 of the annunciator and both sets are mounted on a common pivot 27 in such a manner that the upper ends of the vanes can be swung from a normal position at one side of the view opening 22 to a position behind the latter. In the present instance, a set of ten number vanes are provided, each designated with a number individual thereto, the series of numbers reading consecutively from 0 to 9, and the other set of name-bearing vanes 26 will, of course, vary in number according to the variety of the wants for which provision is made. For instance, the name vanes 26 will be designated with such words as "Porter", "Stationery", "Water", "Hot water", "Cigars", "Cab", "Physician", etc. As shown in Fig. 4, only four name-bearing vanes 26 are provided in the present arrangement, and these vanes terminate at their upper ends in segmental plates 28 which, as shown in Fig. 5, can extend across the bottom of the view opening, while the number vanes will be displayed above the segmental plate 28, which means that the number vanes are longer than the name vanes. Each vane is provided with a spring 29 connected by a link 30 with a vane and anchored at 31 on the cabinet 21, and the springs are tensioned in such a manner as to tend to throw the vanes to display position. Each vane also is provided with means for permitting it to move step by step from normal to display position by means of an electro-magnetically controlled device designated generally by F, Fig. 3. These devices for the number vanes are arranged in two groups of five each, as clearly shown in Fig. 2, near the lower corners of the cabinet, while the devices F for the name vanes are disposed in two groups adjacent the upper corners of the cabinet. Each device consists of an electro-magnet 32 that has an armature 33 carried by an escape-

ment 34 which coöperates with a ratchet bar 35 to permit a step by step movement of a vane. The bars 35 of the lower groups of devices F are connected by links 36 with the lower ends of the number vanes 25, while the bars 35 of the upper groups of devices F are connected by links 37 with the name-bearing vanes. The bars 35 of each group slide longitudinally in a frame 38 fastened to the rear side of the front plate of the cabinet. This frame 38 has spaced members 39 provided with slots 40 that form seats for the ratchet bars 35 and the bars are held in the slots by retaining strips 41 arranged in fixed relation to the frame 38. Each escapement 34 consists of a leaf spring 42, as shown more clearly in Fig. 20, and on the free extremity of the spring is secured the armature 33. The escapements 34 of each group are fastened to one of the cross strips 41 in coöperative relation with the respective electromagnets 32. Each ratchet bar is provided with spaced slots 43, 44 and 45, for receiving the teeth 46 and 47 of the escapement coöperating with such ratchet bar. As shown in Fig. 20, the tooth 46 extends from one side of the armature 33, while the tooth 47 is carried by a bracket 48 on the armature and is in the form of a screw which provides for adjustment. The co-acting teeth 46 and 47 are spaced laterally apart so that when one tooth is in any slot of the bar 35, the other tooth will be disengaged from the bar.

The operation of a vane will now be considered in connection with Figs. 1 and 7 to 11. When the vanes are in normal position, the escapement and rack bars assume the position shown in Fig. 7 with the tooth 46 of each escapement engaged in the slot 43 of its ratchet bar 35, there being a tension in the direction of the arrow produced by the spring 29 for the vane to which the ratchet bar is connected. When a guest desires to send any call to the office, he presses the push button B to create a succession of current impulses which energize the electro-magnet or magnets which control the number vanes that display the number of his room. When an electro-magnet is energized, the armature 33 is attracted toward the pole pieces of the electro-magnet from the position shown in Fig. 7 to that in Fig. 8. This disengages the tooth 46 from the slot 43 and engages the tooth 47 with the next slot 44, while placing the spring of the escapement under tension. By thus disengaging one tooth and engaging the other with the ratchet bar, the latter is permitted to move one step, which movement is arrested by the tooth 47. When the electro-magnet is deenergized by the opening of the circuit, the spring of the escapement moves the armature away from the electro-magnet to thereby engage the tooth 46 in

the second slot 44 after the tooth 47 has been disengaged from such slot, and as the result, the ratchet bar moves another step from the position shown in Fig. 8 to that shown in Fig. 9. Upon again energizing the electro-magnet, the armature is attracted and disengages the tooth 46 from the second slot 44 and engages the tooth 47 in the slot 45 to permit the ratchet bar to move another step, as shown in Fig. 10. Upon again deenergizing the electro-magnet, the tooth 47 is disengaged from the slot 45 while the pin 46 engages in said slot and thus permits the ratchet bar to move another step, as shown in Fig. 11. Through this step by step movement of the ratchet bar, the vane connected therewith is moved to the left hand side of the opening 22, Fig. 1, or to the dotted line position, Fig. 2. The step by step movement is provided only for the number vanes, because by this method of operation, any combination of numbers can be produced by a set of only ten vanes, numbered consecutively from 0 to 9, whereas the name-bearing vanes are thrown in one step from normal to display position, and for this purpose, each bar 35 connected with said vanes has two slots 43' and 44', as shown in Fig. 16, the latter slot 44' taking the place of the two slots 44 and 45 of the ratchet bars connected with the number vanes. To reset the vanes, the lever 23 at the front of the cabinet is depressed, which rocks the shaft 49 that extends through the front of the cabinet and has a crank arm 50 provided with a pin 51 which engages those vanes that have been thrown to display position, so that when the lever 23 is depressed, it will return them to normal position, where the vanes will be locked by the escapements of the electro-magnets. As shown in Figs. 7 to 11, the slots 44 and 45 are beveled at 52, so that the tooth 46 will readily slide out of the slots during the return movement of the ratchet bars by the depression of the lever 23. The lever is held retracted by a spring 53 connected with the crank 50 and with the front plate of the cabinet, as clearly shown in Figs. 2 and 3.

The operation of one or more digit vanes and a name-bearing vane in predetermined sequence will be readily understood, reference being had to Figs. 12 to 19, inclusive, of which Fig. 12 represents the circuit connections between the annunciator and one room, the number of which is assumed to be 85. The push button B is shown diagrammatically and consists of separate yielding contacts 54, 55 and 56, and a movable contact 57, which is moved into and out of engagement with the other contacts by the pressing and releasing of a plunger or button 58 which bears on the spring contact 57. The contacts 54 and 55 are connected by wires 8 and 5, respectively, with electro-

magnets 32 controlling the operation of the number vanes 25^b and 25^a having the digits 8 and 5, respectively. These magnets are connected by a common return wire 10' which is connected with one side of a battery *b*, while the other side thereof is connected by a wire 10^a with the movable contact 57 of the push button device. The contact 56 is connected by a wire 59 with a cord conductor 60 that has a plug 61 adapted to be inserted in one of a number of sockets 62, which sockets are connected by separate wires with the electro-magnets for operating the name-bearing vanes. In the diagram of Fig. 12, only one socket is shown which is connected by the wire 11 with the electro-magnet 11^m which controls the vane bearing the word "Porter". Normally, the circuit is open as shown in Fig. 12, and when the guest in room 85 desires the porter, he inserts the plug 61 of the push button or circuit closing device B into that socket 62 that is designated "Porter" or "P." as an abbreviation of "Porter", and then presses and releases the push button, which has the effect of instantly throwing the digit vanes making the number 85 and the vane bearing the word "Porter" in line with the view opening 22 of the annunciator. Upon pressing the button inwardly, the successive circuits are completed as follows: first, the spring contact 57 engages the contact 54 to cause current to flow from the battery through the wire 10^a, contacts 57 and 54, wire 8, electro-magnet for the vane 25^b, wire 10', and battery *b*. The electro-magnet 8^m is thus energized while the push button contacts are in the position shown in Fig. 13, and by means of the escapement mechanism, the vane 25^b will move one step. As the contact 57 moves past the contact 54, as shown in Fig. 14, the electro-magnet will be deenergized and cause the vane 25^b to move another step, when it will be exposed through the view opening 22 at the right hand side thereof. Upon further pressing the push button, the contact 57 is engaged with the contact 55, so that current will flow through the circuit consisting of the wire 10^a, contacts 57 and 55, wire 5, electro-magnet 5^m connected therewith, return wire 10', and battery *b*, with the result that the vane 25^a carrying the digit 5 will move one step from the position shown in Fig. 14 to that shown in Fig. 15. While the contact 57 is still engaging the contact 55, the push button will be pressed still farther to electrically connect the contact 57 with the contact 56, so that the circuit will now be completed through the cord 60, as shown in Fig. 16, the current flowing through the wire 10^a, contacts 57 and 56, wire 59, cord 60, wire 11, electro-magnet 11^m controlling the vane bearing the name "Porter", return wire 10', and battery *b*. The vane 26 bearing the name "Porter"

will thus be thrown to full view position, as shown in Fig. 16 from the position shown in Fig. 15, the circuit through the electro-magnet for the vane bearing the digit 5 being held closed during this operation of the vane bearing the word "Porter". Upon releasing the push button, the circuit is broken successively between the contacts 56, 55 and 57, which is shown in Fig. 17, and at this point the vane bearing the number 5 will be moved another step. As the push button is further released, the contact 57 will engage on its return movement the contact 54, as shown in Fig. 18, so as to again energize the electro-magnet controlling the vane bearing the digit 8 and cause such vane to move another step from the position shown in Fig. 17 to that shown in Fig. 18. When the contact 57 finally reaches the position shown in Fig. 19, the circuit is broken through the electro-magnet just energized and, as a consequence, the vane 25^a will move to its final or decimal position so as to combine with the unit digit on the vane 25^a to produce the number 85. The clerk's attention will be called, by a suitable signal, to the actuation of the annunciator and he will see that the guest in room 85 desires the porter. After attending to the call, the clerk presses the lever 23 and restores the vanes to normal position. Obviously, if the guest desired to make some other call than the one for the porter, he would insert the plug 61 of the cord 60 into the appropriate socket before pressing the push button. For any room designated by a single digit, the contact 55 of the push button will have no connection with any magnet, so that only one number vane will be operated. When only a set of ten vanes is employed, it is necessary to provide some code character for such room numbers as 22, 33, 44, etc., and for this purpose the contact 54 of the push buttons in such rooms having similar unit and decimal digits will be connected with the magnet controlling the vane bearing the numeral 0, while the contact 55 of the push buttons will be connected with the electro-magnets for operating the appropriate unit digit-carrying vanes. Thus, the numbers for rooms 22, 33, 44, etc., will be represented by the code number 02, 03, 04, etc. This scheme will also be carried out in hotels having more than one hundred rooms and where two sets of vanes are employed, so that for rooms 111, 222, 333, etc., the code numbers will be 011, 022, 033, etc.

As shown in Fig. 1, the bell G is arranged at the annunciator for attracting the attention of the office clerk when the annunciator is actuated by any guest pressing his push button. The circuit of this bell is automatically closed by a switch S shown in Figs. 2, 3 and 12, the same consisting of a spring

contact 63 normally closing the circuit through the return wire 10' by engaging the contact 64. A contact 65 is connected by a wire 66 with one binding post of the bell G, as shown in Fig. 12, and the other binding post of the bell is connected by a wire 67 with the wire 10^a, so that when the spring 63 is moved into engagement with the contact 65, the bell circuit will be closed to receive current from the battery b and the annunciator circuit will be opened. The detail construction of the spring contact 63 is shown in Fig. 3 and is so arranged that when a number vane reaches the end of its fourth step and occupies a position at the left half of the view opening 22, the spring contact will be moved by such vane out of engagement with the contact 64 and into engagement with the contact 65, and the bell will continue to ring until the office clerk presses the lever 23 to re-set the annunciator vanes.

For the annunciator system in which only fourteen digit and name vanes are provided, the cable C, Fig. 1, will consist of fifteen wires, one for each electro-magnet and numbered consecutively from 0 to 13, and a common return wire designated 10^a, and these wires are connected to binding posts p at the bottom of the annunciator cabinet. These wires extend upwardly through the cabinet and connect with the various electro-magnets designated 0^m, 1^m—13^m, which are the same magnets 32 which control the digit and name-bearing vanes. The four wires 10, 11, 12 and 13 are provided with branches 10^b, 11^b, 12^b, 13^b, at each room for connection with the separate sockets 62 of the push button devices B and the common return wire 10^a will also be provided with branches that are connected with the contacts 57 of the push button devices. The first nine rooms of a thirty-nine room hotel will have their push buttons connected respectively by single wires or branches with the wires 1 to 9, inclusive, of the cable, such branches being connected with the contacts 54 of the push buttons. In the case of room No. 10, the two branches extend from wires 1 and 0 of the cable to the contacts 54 and 55 of the push button, while in room 11, the branches from the wires 1 and 0 will be reversed to those for the push button in room No. 10, by being connected, respectively, with the contacts 55 and 54, so that when the push button in room No. 10 is pressed, the annunciator will indicate No. 10, whereas when the push button in room 11 is pressed, the annunciator will exhibit the code No. 01, which the clerk knows represents room No. 11. In all the rooms above 10, two branches are provided from the appropriate wires of the cable to the push buttons in the various rooms. It will thus be seen that only eleven wires will be required in the cable for a

ninety-nine room hotel to operate the digit vanes of the annunciator to produce any combination, one of such wires forming a common return for the circuits, and for each name bearing vane there is a separate wire and hence the total number of wires in the cable will be increased above eleven according to the number of magnetically-actuated name-bearing vanes. For a hotel having rooms numbering from 100 to 999, it is merely necessary to provide ten additional wires in the cable for use in connection with the other ten wires and common return wire to operate the electro-magnets of the number-carrying vanes of which there will be two sets of ten each to produce a combination of three digits.

The devices B in the different rooms are of the same construction, and a description of one will be sufficient. Each device consists of a disk-shaped base 76 of insulating material which has a chamber 77 for accommodating the contacts 54, 55, 56 and 57, and on the disk is a guide 78 for the button or follower 58 which actuates the spring contact 57 to make the various circuit connections. The disk 76 is secured to the wall of the room in any appropriate place and the sockets 62 are arranged in the disk and the flexible cord conductor 60 is fastened to the disk and connected by the wire 59 with the contact 56. A group of fourteen sockets designated 0^s to 13^s are arranged in the disk of the push button or circuit closing device B, and the fourteen wires are, respectively, connected to these sockets by branches 0^b to 13^b, inclusive. As shown in Fig. 21, the contacts 54 and 55 are connected, respectively, by wires 80 and 81 at the back of the push button disk with sockets 8^s and 5^s, if it is assumed that the push button in question is located in room 85. If it were located in room 58, the wires 80 and 81 would be connected, respectively, with the sockets 5^s and 8^s, so it will be seen that these back connections between the contacts 54 and 55 with the sockets will vary according to the numbers of the rooms. The sockets 10^s, 11^s, 12^s, 13^s, are connected by back connections 82, 83, 84, 85, with the separate sockets 62 for the circuits of the annunciator name-bearing vane magnets.

In Fig. 23, a modified form of vane is shown for use in an annunciator for a small hotel having, for instance, twenty-five rooms. The vane 90 has a sector-shaped arm at the periphery of which are arranged a series of numerals, those on the first vane reading 1 to 5, on the second vane 6 to 10, on the third 11 to 15, etc. These vanes are mounted on a common pivot 91, so that any number can be exposed through the view opening 92. The electro-magnetic controlling means for the vanes will be the same as that already described, except that its

escape or ratchet bars 93, connected with the respective vanes, are provided with six slots 94 which coast with the teeth of the escapement. The electro-magnet controlling each vane will be connected with push buttons in five different rooms and these push buttons are so constructed that the electro-magnets will be energized once when the push button in rooms 1, 6, 11, etc., are pressed to cause the vanes for such rooms to be moved one step, and the electro-magnets will be energized twice by the pressing of the push buttons in rooms 2, 7, 12, for causing the vanes to move two steps for exposing the room numbers through the view opening, and the electro-magnets will be energized three times when the push buttons in rooms 3, 8 and 13, etc., are pressed to move the vanes three steps and so on. In combination with vanes of this character, the usual word-bearing vanes will be employed to operate in the manner described in connection with preferred form of the annunciator.

While a series of numeral-bearing vanes have been shown and described to integrate various numbers, it is to be understood that other designations than numbers may be used if found desirable for the integration of a signal or message to identify the point or station from which the message is sent in. The other set of vanes which are used to convey the message have been designated "word-bearing vanes" but this term is used to signify, broadly, any word, combination of words, code characters or the like, to impart a message, and, obviously, the term "vanes" is employed to denote any character-bearing element of a series used to integrate or spell a message both as to the place from which it is sent and the import of such message.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, I desire to have it understood that the apparatus shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. In an annunciator system, the combination of a plurality of vanes numbered consecutively from zero to nine, separate electro-magnets and means actuated thereby controlling the operation of the vanes to different exhibiting positions, a circuit com-

posed of ten wires connected respectively with the electro-magnet and of a common return wire including a source of current, and a plurality of circuit-closing devices
 5 connected with the various wires whereby the vanes can be actuated to exhibit digits and combinations thereof designating numbers between one and ninety-nine.

2. In an annunciator system, the combination of a single group of vanes numbered consecutively from zero to nine, means for moving the vanes step by step to exhibiting positions, and separate devices
 10 controlling the order and length of movement of any two vanes for exhibiting a double digit number.

3. In an annunciator system, a plurality of vanes in juxtaposition and each bearing a single digit differing from that of each other vane, means for normally hiding all the vanes and having a sight opening at which the vanes are movable to different exhibiting positions, a common pivot for the vanes, separate actuating means for the individual vanes, and a plurality of controlling devices each individual to a vane and controlling the actuating means therefor, each
 20 controlling device having means acting on its individual vane to move the latter to different exhibiting positions for the single designation thereon whereby a single vane or a plurality of vanes may be moved to different exhibiting positions to display one or more digits to designate units or numbers of higher order in accordance with the
 25 number of vanes moved to different exhibiting positions.

4. In an annunciator system, the combination of a plurality of vanes separately
 40 movable to exhibiting position, electro-magnetically operated escapement mechanisms each controlling the movement of a single vane, and circuit-controlling devices, some of which cause the actuation of a single escapement mechanism and others the actuation of several escapement mechanisms.

5. In an annunciator system, the combination of a plurality of vanes mounted on a common pivotal center and normally hidden from view, separate devices for moving the vanes step by step to a plurality of exhibiting positions, a plurality of controllers for the said devices to move any vane its full distance or a fraction thereof to combine
 55 with other vanes for exhibiting a signal.

6. In an annunciator system, the combination of a structure having a single view opening, separate sets of vanes, each vane having a single designation, means individual to each vane for moving it into display position with reference to the single opening, devices each controlling a chosen plurality of vanes for movement under their actuating means to different predetermined
 65 display positions with respect to the single

opening to together indicate a message, and means for resetting the actuated vanes.

7. In an annunciator system, a structure having a single view opening, a plurality of sets of vanes normally disposed out of line
 70 with the opening, actuating means individual to each vane, separate controlling means for each vane for moving any vane of a set from the hidden to the full display position independent of any other vane, and
 75 means for causing the actuation of the controlling means in predetermined order and different relative extents to the opening in a combination to indicate a message.

8. In an annunciator system, the combination of a set of vanes having members thereof numbered from zero to nine, a second set of vanes each having a designation constituting a message, means for causing
 80 vanes of the first set to move to a plurality of display positions, and means for causing a vane of the second set to move to display position in coöperative relation to the displayed vane or vanes of the first set to indicate a message.
 90

9. In an annunciator system, a set of vanes having designations to indicate points from which the messages are sent, each vane being movable to a plurality of display positions, means for moving one or a combination of
 95 said vanes to display position, a second set of vanes having message designations, means, independent of the means for causing the movement of the first set of vanes, for causing the individual movement of any one of
 100 the last mentioned vanes to display position, and a common device for moving all the actuated vanes from display position and resetting the same.

10. In an annunciator system, the combination of a set of separate vanes mounted
 105 on a common pivotal center and numbered consecutively from zero to nine, a second set of separate vanes mounted on the same pivotal center and having designations constituting messages, separate actuating means for the individual vanes, devices for controlling the actuating means to move different combinations of independent vanes to display position without actuating any other
 110 vanes, and a device for re-setting the displayed vanes.

11. In an annunciator system, the combination of a set of vanes numbered from zero to nine, another set of vanes having names
 120 thereon, a common pivot for the vanes of both sets, and separate electro-magnets for controlling the operation of the individual vanes, the set of vanes bearing the numbers being of different length from the set of
 125 vanes bearing names.

12. In an annunciator system, the combination of a set of vanes numbered from zero to nine, a set of name-bearing vanes, a common pivot for the vanes of both sets, and
 130

electro-magnetically operated escapement mechanisms connected respectively with the individual vanes of both sets.

13. In an annunciator system, the combination of a set of vanes numbered from zero to nine, a set of name-bearing vanes, a common pivot for the vanes of both sets, electro-magnetically operated escapement mechanisms each connected with a single vane, and means for re-setting the vanes.

14. In an annunciator system, the combination of a cabinet having a view opening, a set of vanes numbered consecutively from zero to nine, a second set of vanes bearing designations and each of a length different from the length of the number bearing vanes, a common pivot on which the vanes of both sets are mounted in such relation to the opening that vanes of both sets can be simultaneously exhibited through the opening, and means for controlling the movement of the vanes in a combination to show a message and designate its source.

15. In an annunciator system, the combination of a cabinet having a view opening, a set of vanes numbered consecutively from zero to nine, a second set of vanes bearing designations and each of a length different from the length of the number bearing vanes, a common pivot on which the vanes of both sets are mounted in such relation to the opening that vanes of both sets can be simultaneously exhibited through the opening, means for controlling the movement of the vanes in a combination to show a message and designate its source, and a device operated from a point exterior to the cabinet for re-setting the vanes.

16. In an annunciator system, a plurality of vanes bearing designations, means for normally hiding the vanes and provided with a single circumscribed view space, constraining devices each individual to a single vane and tending to move the latter from the hidden position to a display position within the single view space, electrically operated means individual to and controlling the movement of each vane under its constraining means by separate stages, separate circuit closers for causing the energization of the electrically operated means to release vanes for movement to respective display positions within the view space, and a resetting device for moving the vanes from the display to the hidden position against their normal tendency.

17. In an annunciator system, a plurality of elements numbered consecutively from zero to nine, means individual to the elements and tending constantly to move the respective elements from set to display position, and an electro-magnet controlling device individual to each element and constructed to normally hold the element against its normal tendency and to release

it for movement to a plurality of display positions, the elements being constructed for movement to associated positions within a single view space, circuit connections, and circuit closers having means for causing the energization of the electro-magnetic devices to release predetermined elements to display positions within the view space to exhibit predetermined numbers less than one hundred.

18. In an annunciator system, a plurality of vanes constructed and mounted for movement into different associated display positions within a single circumscribed view space, means tending constantly to cause movement of the vanes toward the display position, an escapement device connected and individual to each vane to cause a step by step movement thereof under the action of the constraining means, electro-magnets controlling the escapement devices, and means for energizing the magnets for causing a predetermined display of the vanes at will.

19. In an annunciator system, the combination of a plurality of vanes all mounted for individual movement to a plurality of display positions within a view space common to all the vanes, means tending to move the vanes separately from set position to display position, an escapement device connected with each vane to cause step by step movement thereof to different display positions within the view space, electro-magnets controlling the escapement devices, means for energizing the magnets to cause actuation of the escapement devices, and a manually operated device normally out of engagement with the vanes and movable to engage the displayed vanes for resetting the same.

20. In an annunciator system, the combination of a plurality of pivoted vanes each movable to a plurality of display positions within a display area common to all the vanes, a reciprocatory escapement bar connected to each vane, an electro-magnetically operated escapement arranged in cooperating relation with each bar for permitting the latter to move step by step, and means connected with each vane for moving the same to display position.

21. In an annunciator system, the combination of a plurality of pivoted vanes each movable to a plurality of display positions within a display area common to all the vanes, a reciprocatory escapement bar connected to each vane, an electro-magnetically operated escapement arranged in cooperative relation with each bar for permitting the latter to move step by step, means connected with each vane for moving the same to display position, and a resetting device arranged to engage the vanes to return the same to normal position, the escapement be-

ing constructed to yield to permit the return movement of the escape bars during the resetting of the vanes.

22. In an annunciator system, the combination of a plurality of pivoted vanes each movable to different display positions within a view space common to all the vanes, a spring connected to each vane and tending to move it to display position, a member connected with each vane, a spring member having oppositely disposed teeth forming an escapement, means on the first named member with which the teeth of the spring member alternately engage to permit step by step movement of the first named member, and an electro-magnet coöperating with the spring member for operating the escapement.

23. In an annunciator system, the combination of a plurality of pivoted vanes each movable to different display positions within a view space common to all the vanes, a spring connected to each vane and tending to move it to display position, a member connected with each vane, a spring member having oppositely disposed teeth forming an escapement, means on the first named member with which the teeth of the spring member alternately engage to permit step by step movement of the first named member, an electro-magnet coöperating with the spring member for operating the escapement, and a device for resetting the vane and returning the first named member to normal position.

24. In an annunciator system, the combination of a plurality of vanes, a pivot common to all the vanes and on which the latter are mounted, a spring for each vane arranged to move the latter to display position, a reciprocatory bar connected with each vane and provided with slots, a member for each bar having oppositely disposed teeth arranged to engage one tooth in a slot while disengaging another tooth from another slot of the bar, an electro-magnet controlling the movement of the said member, and separate circuit closing devices connected in circuit with the magnet for energizing the latter a predetermined number of times to permit the vane controlled thereby to move to different displayed positions.

25. In an annunciator system, the combination of a plurality of vanes, a pivot common to all the vanes and on which the latter are mounted, a spring for each vane arranged to move the latter to display position, a reciprocatory bar connected with each vane and provided with slots, a member for each bar having oppositely disposed teeth arranged to engage one tooth in a slot while disengaging another tooth from another slot of the bar, an electro-magnet controlling the movement of the said member, separate circuit closing devices connected

in circuit with the magnet for energizing the latter a predetermined number of times to permit the vane controlled thereby to move to different displayed positions, said bar being freely movable over the teeth on its return movement, and means for resetting the vanes and returning the bars to normal position.

26. In an annunciator system, the combination of a vane having a single designation thereon and movable to different display positions within a single sight space, electro-magnetic controlling means for the vane and including circuit connections, and separate circuit closers for causing the energization of the electro-magnetic means, each circuit closer having a plurality of contacts in position to be engaged in order on each active movement of the movable part of the circuit closer for energizing the electro-magnetic means to move the vanes to different display positions within the sight space.

27. In an annunciator system, the combination of a vane having a single designation thereon and movable to different display positions within a single view space, electro-magnetic controlling means for the movement of the vane to display positions, a circuit connected with the electro-magnet, separate circuit closers connected with the circuit and each having a plurality of contacts in position to be engaged in order on each active movement of the movable part of the circuit closer for causing the energization of the electro-magnet a number of times in accordance with the number of active contacts of the circuit closer to move the vane to different positions within the single view space, and a signal device energized only when the vane is moved to its full extent within the view space.

28. In an annunciator system, the combination of a plurality of vanes each having a numeral thereon and movable to unit and higher positions within a single view space, means for controlling the movement of each vane, and a signal circuit closed by the vane when the latter is in the higher position.

29. In an annunciator system, the combination with a vane bearing a number and movable to different positions within a single sight space, electrical means for controlling the movement of the vane, and a signal circuit closed by the vane only when the latter has reached the extreme limit of its possible active movement with respect to the sight space.

30. In an annunciator system, the combination of a vane bearing a number and movable to different positions within a single sight space, electrical means for controlling the movement of the vane, a single circuit, and a device for closing the signal circuit and opening the circuit of the said

electric means when the vane has reached the extreme limit of its possible active movement within the sight space.

31. In an annunciator system, the combination of a plurality of vanes numbered respectively from zero to nine and each movable to two display positions, one representing a unit and the other tens, a controlling electro-magnet for each vane, a signal circuit, and means for closing the signal circuit when any vane reaches the tens position.

32. In an annunciator system, the combination of a plurality of vanes numbered respectively from zero to nine and each movable to two display positions one representing a unit and the other tens, a controlling electro-magnet for each vane, a signal circuit, means for closing the signal circuit when any vane reaches the tens position, and a switch device for opening the magnet circuits and closing the signal circuit by any vane moved to the tens position.

33. In an annunciator system, the combination of separate sets of number and name bearing vanes, the number bearing vanes being movable to different display positions within a single sight space, electrical means controlling the actuation of the vanes, and a signal device operated by the number bearing vanes only when any of the latter reaches the limit of its active movement within the sight space.

34. In an annunciator system, the combination of separate sets of number and name bearing vanes, electrical means controlling the actuation of the vanes, a signal device operated only by the number-bearing vanes when any of the latter reaches a given display position, and means for rendering all the electrical means inoperative at the time the signal device is actuated.

35. In an annunciator system, the combination of a set of vanes numbered consecutively from zero to nine, a set of name-carrying vanes, separate electrical means for actuating the vanes of both sets independently, circuits for the electrical means, circuit closers for energizing different combinations of the electrical means, a signal circuit, and a switch for closing the signal circuit and cutting the electrical means out of circuit when a number-bearing vane is moved to a given display position.

36. In an annunciator system, the combination of a set of vanes numbered consecutively from zero to nine, a set of name-carrying vanes, separate electrical means for actuating the vanes of both sets independently, circuits for the electrical means, circuit closers for energizing different combinations of the electrical means, a signal circuit, a switch for closing the signal circuit and cutting the electrical means out of circuit when a number-bearing vane is moved

to a given display position, and a device for re-setting the displayed vanes and permitting the switch to automatically return to normal position.

37. In an annunciator system, the combination of a set of elements numbered from zero to nine, a second set of elements bearing different signal words or characters, electrically-actuated means for each of the last-mentioned elements controlling the same for movement to a single display position, separate electrically-actuated means controlling the movement of the number-bearing elements to unit or tens position, a separate wire connected with each electrical means, a common return wire connected with all the electrical means, and a plurality of circuit closers connected with all the wires leading to the electrical means for the second set of elements and connected with some of the wires that are connected with the electrical means for the first set of elements to permit any one or pair of the first set of elements and any one of the second set of elements to be simultaneously exhibited.

38. In an annunciator system, the combination of a set of elements numbered from zero to nine, a second set of elements bearing different signal words or characters, electrically-actuated means for each of the last-mentioned elements controlling the same for movement to a single display position, separate electrically-actuated means controlling the movement of the number-bearing elements to unit or tens position, a separate wire connected with each electrical means, a common return wire connected with all the electrical means, a plurality of circuit closers connected with all the wires leading to the electrical means for the second set of elements and connected with some of the wires that are connected with the electrical means for the first set of elements to permit any one or pair of the first set of elements and any one of the second set of elements to be simultaneously exhibited, and a signal circuit having means for automatically closing the same when any one of the first set of elements is moved to tens position.

39. In an annunciator system, the combination of a set of elements numbered from zero to nine, a second set of elements bearing different signal words or characters, electrically-actuated means for each of the last-mentioned elements controlling the same for movement to a single display position, separate electrically-actuated means controlling the movement of the number-bearing elements to unit or tens position, a separate wire connected with each electrical means, a common return wire connected with all the electrical means, a plurality of circuit closers connected with all

the wires leading to the electrical means for the second set of elements and connected with some of the wires that are connected with the electrical means for the first set of elements and any one of the second set of elements to be simultaneously exhibited, a signal circuit having means for automatically closing the same when any of the first set of elements is moved to tens position, and a device for re-setting the displayed elements and permitting the said circuit closing means of the signal circuit to automatically open the latter.

40. In an annunciator system, the combination of a set of vanes numbered consecutively from zero to nine, a second set of vanes having signal words or characters, the vanes of the first set being movable to unit or tens position, a separate electro-magnet controlling the movement of each vane to display position, a wire for each magnet, a return wire connected with all the magnets,

circuit-closing means connected with the said wires for actuating any of the second-mentioned vanes or any one or two of the first-mentioned vanes, and a re-setting device common to all the vanes.

41. In an annunciator system, the combination of a set of number vanes movable to unit and higher positions, a plurality of name-carrying vanes, separate electrical vane-actuating means, a circuit-closing device for the electrical means that actuate the number-bearing vanes, and means for connecting the device with any one of the actuating means for the name-bearing vanes.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM TRIBBLE.

Witnesses:

JOHN H. SIGGERS,
DAVID R. WAGNER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."