Nov. 4, 1930. I. J. LICHTER 1,780,711

CALL SYSTEM

Filed Oct. 1, 1929

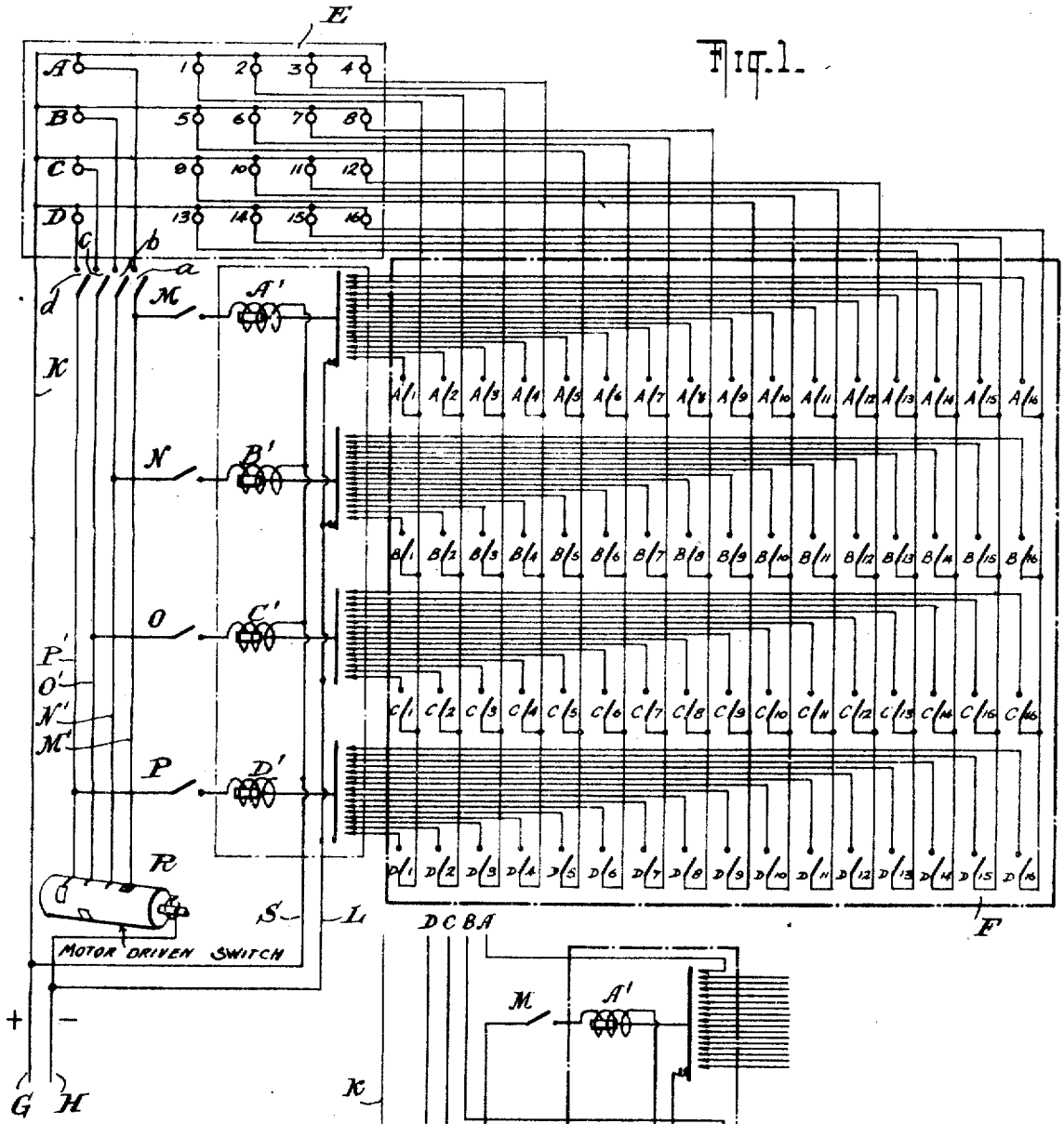


Fig. 1.

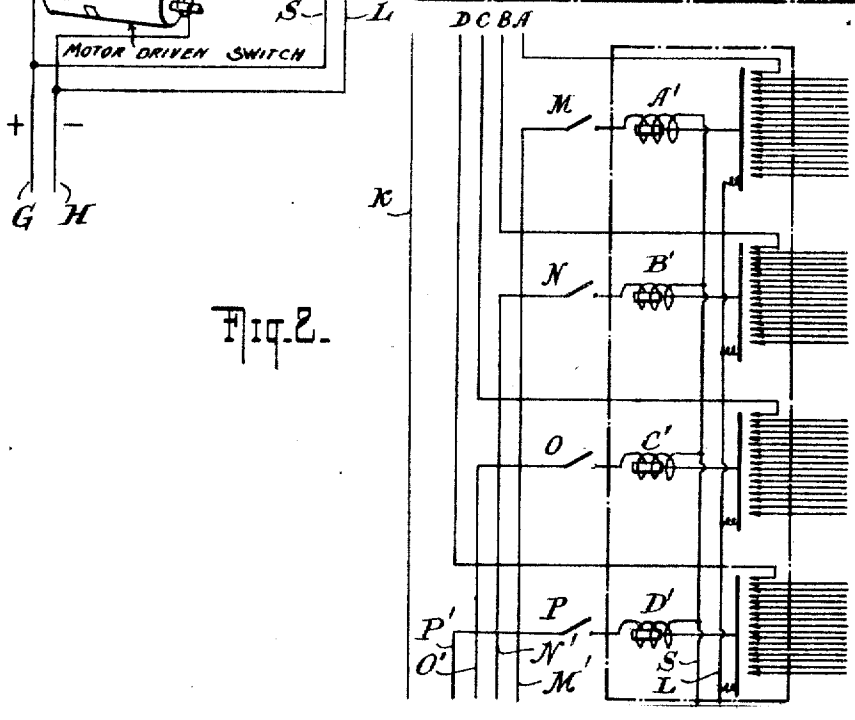


Fig. 2.

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UNITED STATES PATENT OFFICE

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CALL SYSTEM

Application filed October 1, 1929. Serial No. 396,466.

This invention relates to annunciator or call system.

One object of the invention is an annunciator system capable of annunciating as many separate and distinct signals at one time and without confusion as may be desired and particularly such an annunciator which is characterized by the small number of wires and signal devices, such, for example, as lamps, required to send out the full capacity of calls. A further object of the invention is an annunciator of this general character characterized by its simplicity in installation and operation and by its economy in original cost and in maintenance.

For a better understanding of the invention reference may be had to the accompanying drawings forming a part of this application wherein:

Fig. 1 is a diagrammatic view of an annunciator system embodying the invention and

Fig. 2 is a slight modification thereof.

The annunciator system includes an annunciator or display panel or board E having a plurality of signal devices thereon preferably visual as, for example, a combination of letter and numeral signals. The letter signal devices as one group are indicated at A, B, C and D and the numeral signals as a second group are indicated from 1 to 16 and the signals or calls to be annunciated or displayed are A^1, A^2, A^3 up to A^{16} and B^1, B^2, B^3 up to B^{16}, etc. making a total capacity of 64 calls for the annunciator herein exhibited when using two signal devices or lamp codes. A call is readily recognized by the simultaneous flashing of the number and letter of that call.

The call switchboard is indicated at F and it includes a horizontal bank of call switches corresponding to each letter signal device, and each bank includes switches equal in number to the numeral signals. Namely, there are four banks of switches in the particular embodiment shown of 16 switches each, the call switches in one bank being denoted A^1, A^2, A^3 up to A^{16}, in another bank B^1, B^2, B^3 up to B^{16} in another bank C^1, C^2, C^3 up to C^{16} and in the fourth bank D^1, D^2, D^3 up to D^{16}. Each of these switches leads on one side through a connecting wire to the corresponding visual numeral signal of the annunciator board. All the signal devices of the annunciator board are connected on one side in multiple through the wire K with the one side G of the source of power and the banks of switches of the call board 2 are connected in groups with the contacts of the relays A′, B′, C′ and D′ respectively for successive connection with the other side H of the source of power through the conductor L. The relays are connected on one side through the lines with the power line G and are successively energized by a controller R of any suitable character, the latter successively connecting the lines M, N, O, P with the other side H of the power line at closely timed intervals. The controller R is motor driven and may be, for example, of the general character of controller set forth in my application Serial No. 334,165 and including means for successively connecting the leads or conductors M′, N′, O′, P′ which lead to the relays through the circuits M, N, O, P to the H side of the circuit. The letter signals A, B, C and D are also successively energized by the controller R simultaneously with the energization of the relays A′, B′, C′ and D′. This may be effected by connecting the leads M′, N′, O′ and P′ directly with the visual signals A, B, C and D (Fig. 1) or by connecting these letter signals respectively with the armatures of relays A′, B′, C′ and D′ as indicated in Fig. 2. The lines M, N, O, P and M′, N′, O′, P′ may if desired be provided with switches, as indicated. The switches, *a*, *b*, *c* and *d* disposed in the lines M′, N′, O′, P′ enable the operator to selectively control the letter signals as well as the numeral signals, and the switches in series with the relay coils enable the isolation of one or more relays and banks of switches, as for example when the full simultaneous call capacity of the annunciator is not needed.

The operation is as follows:

When it is desired to send a signal, for example A^1, A^2, A^3, A^4 or B^1, B^2, B^3, B^4, etc., it is only necessary for the call operator to close the particular control switch concerned on the call board as, for example, A^1, A^2, A^3,

A^4, or B^1, B^2, B^3, B^4, etc., and the switches *a*, *b*, etc. The closing of the A^1 switch, and switch *a* for example, would result in the simultaneous display of the visual signals A and 1. Similarly the closure of B^1, C^1, or D^1 would result in the simultaneous and successive displays of the signals B^1, C^1 and D^1. It will be observed that all the calls or signals within the capacity of the annunciator board may be made at one time without confusion or conflict, for example, with the particular annunciator exhibited there are 64 separate and distinct calls all of which may be made at one time or practically simultaneously. The difference in time, for example, between the energization of the groups of signals by the controller R need not be more than one second so that within a period of four seconds the total number of calls may be made and entirely without confusion, and with only 21 wires from the call board to the display board and with only 20 signal devices, such as lamps, at the display board. For an annunciator of larger capacity it is only necessary to increase the number of signal devices in either or both groups at the display board and corresponding circuit control means. For example, the number of signal groups (letters) may be increased to ten (10) and still have each call repeated six times per minute, while the number of numeral signals may be increased indefinitely within practicable limits. The number of lamps required is the sum of the visual signals of the display board, which is one less than the number of wires required from the call board to the display board. The signals or characters being formed of code letters and numerals may be easily read without confusion regardless of the arrangement of the signal devices upon the display board, and no special arrangement thereof is essential.

I claim:

1. In a call system, a display panel and a call board, a plurality of signal devices at the display panel forming one group, a second group of signal devices at the display panel, banks of call switches at the call board corresponding in number of banks to the number of signal devices in the first named group, each of said banks including a switch for each of the signal devices in the second group, circuits from said switches to the signals of the second group and means for successively and intermittently energizing the signals of the first group and simultaneously therewith energizing the banks of switches successively.

2. In a system of the character set forth in claim 1, wherein the means for successively energizing the banks of call switches includes a relay for each bank which is energized simultaneously with the energization of the signal device corresponding to this bank.

3. In a call system of the character set forth in claim 1 wherein the means for simultaneously and successively energizing the signal devices of the first group and the banks of call switches comprise a controller adapted to accurately time the successive energization and deenergization of the signal devices and the banks of call switches.

4. In a call system of the character set forth in claim 1 wherein the means for simultaneously and successively energizing the signal devices of the first group and the banks of call switches comprises a controller adapted to accurately time the successive energization and deenergization of the signal devices and the banks of call switches, together with a relay for each bank of call switches which is energized simultaneously with energization of its corresponding signal device of the first group.

5. In a call system including a display board and a call board, one group of signal devices at the display board together with means for successively energizing and deenergizing said signal devices at closely timed intervals, a second group of signal devices at the display board corresponding in number to the total number of calls divided by the number of signal devices in the first group, banks of switches at the call board corresponding in number of banks to the signal devices of the first group, the switches of each bank corresponding in number to the signal devices of the second group, each of the latter being connected with its corresponding switch of each of the banks and means for successively and simultaneously energizing the banks of switches with the energization of the signal devices of the first group.

6. In an annunciator system including a display board and a call board, a group of conductors leading to the display board, a second group of conductors leading from the call board to the display board, a group of code signal devices disposed at the display board and in the circuits of the first group of conductors, a second and different group of code signal devices disposed at the display board and in the circuits of the second group of conductors, each code call comprising a signal device of each group, means for successively and at timed intervals energizing and deenergizing the conductors of the first group, banks of selectively controlled and calling switches corresponding in number of banks to the active conductors of the first group and connected in multiple across the second group of conductors and means causing the successive energization and deenergization of the banks of switches simultaneously with the successive energization of the conductors of the first group.

7. In an annunciator system a group of conductors leading from the sending to the receiving point through which independent parallel circuits are adapted to be formed and

completed, a second group of conductors leading from the sending to the receiving point through which independent parallel circuits are adapted to be formed and completed, signaling devices at the receiving point one for each conductor, responsive to the independent circuits through the conductors, means for successively and at timed intervals energizing and deenergizing the conductors of the first group, banks of selectively controlled and calling switches connected in multiple across the second group of conductors and means causing the successive energization and deenergization of the banks of switches simultaneously with the successive energization and deenergization of the conductors of the first group.

8. In an annunciator system of the character set forth in claim 1 wherein the means for successively energizing and deenergizing the signal devices of the first group of signal devices comprises selective control means disposed in the circuits thereof and under the control of the operator.

In testimony whereof, I have signed my name to this specification.

IRA JEAN LICHTER.

completed, a second group of conductors leading from the sending to the receiving point through which independent parallel circuits are adapted to be formed and completed, signaling devices at the receiving point one for each conductor, responsive to the independent circuits through the conductors, means for successively and at timed intervals energizing and deenergizing the conductors of the first group, banks of selectively controlled and calling switches connected in multiple across the second group of conductors and means causing the successive energization and deenergization of the banks of switches simultaneously with the successive energization and deenergization of the conductors of the first group.

8. In an annunciator system of the character set forth in claim 1 wherein the means for successively energizing and deenergizing the signal devices of the first group of signal devices comprises selective control means disposed in the circuits thereof and under the control of the operator.

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CERTIFICATE OF CORRECTION.

Patent No. 1,780,711. **Granted November 4, 1930, to**

IRA JEAN LICHTER.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, line 63, for the word "lines" read line S; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 9th day of December, A. D. 1930.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.

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