M. E. LAUNBRANCH.

SIGNAL SYSTEM.

APPLICATION FILED JULY 28, 1916.

1,243,308.

Patented Oct. 16, 1917.

2 SHEETS—SHEET 1.

Fig. 1.

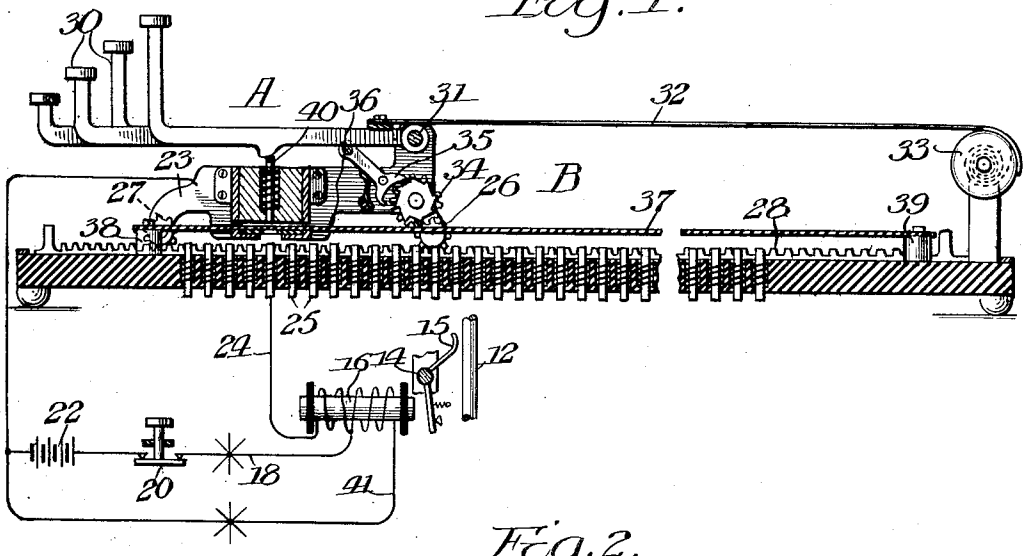
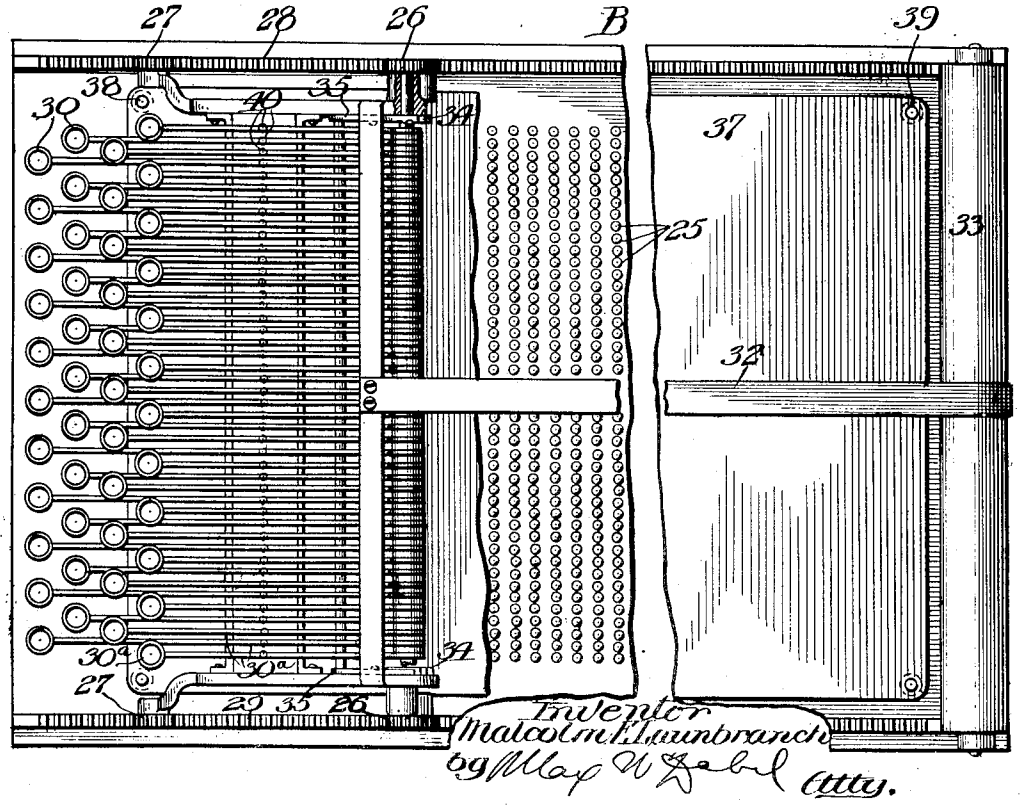


Fig. 2.



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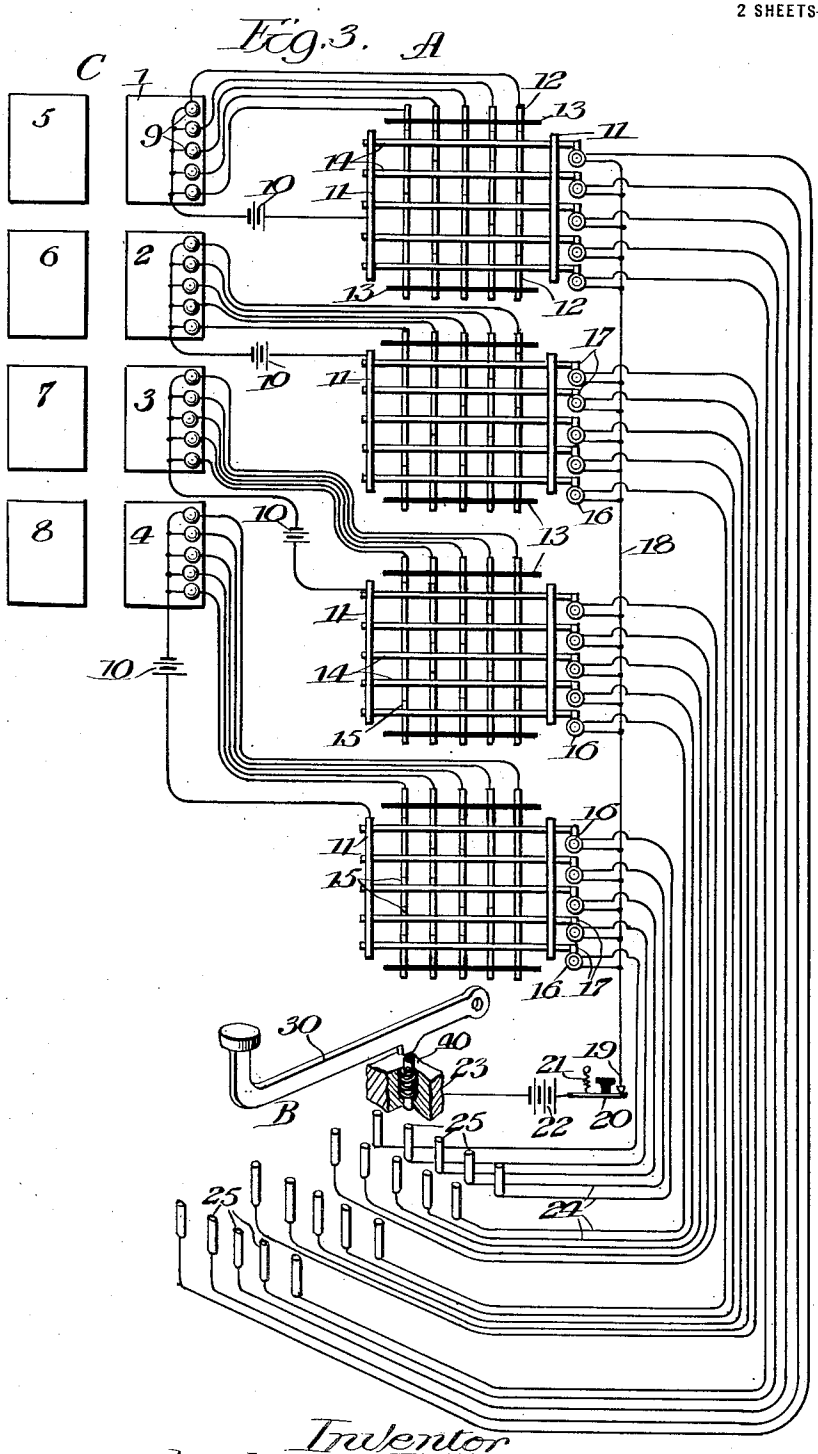
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2 SHEETS—SHEET 2.

Fig. 3. A



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UNITED STATES PATENT OFFICE.

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SIGNAL SYSTEM.

1,243,308. Specification of Letters Patent. Patented Oct. 16, 1917.

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To all whom it may concern:

Be it known that I, MALCOLM E. LAUNBRANCH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Signal Systems, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to electric signal systems and has for its main application a use in connection with display signs. In describing an embodiment of my invention herein, I will describe it more particularly as used in connection with a display sign where through the agency of suitable operating instrumentalities, as a general rule remote from the display sign itself, the said sign may be actuated to portray different legends or pictures as the case may be.

In the description hereinafter and in the claims I will use the word "lamps" as setting forth indication giving devices which are used in the sign units, the word lamp being intended to cover not only lamps but their equivalents in this connection.

My invention is more particularly an improvement over certain operating devices set forth in my co-pending application Serial No. 73,594, filed Jan. 22, 1916.

In my said co-pending application I show a sign having a plurality of sign units in each one of which units it is possible to establish selectively any letter of the alphabet or arbitrary sign by the selection of a predetermined portion of the electric lamps or other signaling devices present in that particular unit. In the embodiment shown in that application there happen to be fifty-two units in four rows of thirteen each, and each unit has fifty-three incandescent lamps. By the proper selection of the lamps of each unit any letter or signal of predetermined character can be established in each unit and as that sign thus has fifty-two units a complete sentence can be written out. Suitable intermediate control devices were provided for each unit and then a master control device was provided to actuate the intermediate control devices in such a way as to successively portray different legends or characters upon the sign.

My present invention has to do particularly with the master control device, and in the preferred form I utilize what I might call a key board having a plurality of elements, the actuation of any one of which causes the eventual appearance of a given character or letter in a given sign unit. I then provide movable means for the key board which in its preferred form may be in the form of a typewriting carriage having finger elements adapted to selectively actuate any predetermined element of the key board. The first actuation will cause the control of the intermediate control device of the first sign unit. The carriage then shifts to its next position automatically and a further actuation of a finger element will cause the selection of a particular character or letter for the second sign unit. Thereupon the carriage automatically moves to its third position, etc. The particular arrangement of the electromagnetic control between the master control device, the intermediate control devices and the sign forms the basis of my present invention.

A preferred form of carrying out my invention I will now describe in connection with the accompanying drawings illustrating said embodiment, in which—

Figure 1 is a longitudinal sectional view of a master control device constructed in accordance with my invention, certain parts of the intermediate control device being diagrammatically indicated to show their interrelation;

Fig. 2 is a top view of the master control devices, and

Fig. 3 is a diagrammatic view showing the interrelation of all of the parts of the system.

Referring more particularly to Fig. 3, I show a part of a sign having the units 1, 2, 3, 4, 5, 6, 7 and 8. There are thus four rows of units and in general when the sign is used in practice while four horizontal rows might be the usual number of such rows, there would probably be ten or more vertical rows. For purposes of illustration however it is thought the eight units mentioned will be sufficient for an understanding of this application. The sign units are each provided with lamps 9 of which there should be the required number in each unit. In

practice I use fifty-three lamps per unit so as to be capable of reproducing whatever signs or characters may be necessary in each unit. These lamps of each unit have preferably a common connection with one terminal of a battery 10, the other terminal of the battery going to the framework 11 forming part of the intermediate control device designated by the general character A at the top thereof. This intermediate control device A is set by the master control device B, thus to control the sign generally designated by C. A terminal for each lamp extends to what I might call a bus bar, these bus bars being generally indicated by the numeral 12. These bus bars 12 are insulatingly mounted on strips 13, 13. The framework 11 of each unit of the intermediate control device carries a plurality of actuating rods 14, which actuating rods are each provided with conducting fingers 15. Each control rod 14 has a predetermined number of conducting fingers 15. Each control rod 14 is adapted when actuated to associate its conducting fingers 15 with the particular cooperating bus bars 12. Thus the actuation of any control rod of any unit of the intermediate control board causes the ignition of the lamps corresponding to the contact fingers 15 and thus portrays that particular character or letter corresponding to that particular control rod 14. It is apparent, of course, from the illustration, that there is a unit for the intermediate control board for each unit of the sign. These control rods 14 are actuated by electromagnets 16, which electromagnets when energized through the agency of their armatures 17 rotate said control rods into the position whereby their fingers engage the bus bars. Thus if it is desired to portray the letters D, E, F and G in the units 1, 2, 3 and 4, then the particular electromagnets corresponding to those letters (there is one electromagnet per control rod of each unit of the intermediate control board) are actuated to effect this result. The circuit through the lamps is of course obvious.

A master control board B is designed to effect the control of the electromagnets 16, that is, to select for operation the particular electromagnet of each intermediate control unit to cause the portrayal of a predetermined character on the associated sign unit. The electromagnets 16 all have one terminal thereof connected to a common conductor 18 which terminates in a contact 19 normally in engagement with the switch lever 20, a spring 21 holding these parts normally in contact. The switch lever 20 is connected to one terminal of the battery 22, the remaining terminal of this battery being connected to the framework 23 of the master control device B. The remaining terminals of the electromagnets 16 are connected by means of conductors 24 to contact plungers 25 provided in the master control device. The contact plungers 25 of a given sign unit are arranged in one row, merely five being illustrated in Fig. 3, but there being in practice as many of these in a given row transversely of the master device as there are letters or characters to be produced in a given sign unit. There are then as many rows of these plungers 25 longitudinally of the device as there are sign units. The arrangement is such then that the framework with the master control device actuates a given plunger 25 of a transverse row, thus actuating an electromagnet 16 of the particular unit. Automatically the framework of the master device moves to the next longitudinal row and an electromagnet of the next unit is actuated. Thus the various sign units are controlled to portray predetermined letters.

When it is desired to obliterate the sign preparatory to writing a new one the contact spring 20 is actuated which breaks the circuit to all of the selected electromagnets 16 and the sign is dark ready to be re-actuated by the master control device.

I will now describe in detail the master control device by virtue of which I accomplish the functions above outlined. This master control device is shown more in detail in Figs. 1 and 2 where the device is shown as consisting of a framework 23 having the pinions 26 and 27 by virtue of which it may roll step-by-step upon racks 28 and 29. This framework carries a plurality of finger actuated elements 30 in the form of levers preferably pivoted upon the shaft 31. The framework is drawn toward the right by a tape 32 wound upon a spring controlled roller 33 and this framework is prevented from moving toward the right normally by the ratchet wheel 34 and escapement 35. Whenever a lever 30 is actuated the escapement is moved to permit of the device upon the return of this lever moving one space to the right, that is, the framework moves from a position over one transverse row 25 to a position over the immediately adjacent transverse row of plungers 25 to the right of the preceding row. Thus when the device is over the first or left hand row of plungers 25, if any element 30 is actuated a particular electromagnet for one of the sign units is actuated. The return of the lever 30 to its normal position permits the framework 23 to move one notch to the right, whereupon a predetermined lever 30 is actuated to select a particular plunger of the second transverse row. Each transverse row of plungers 25 corresponds to one sign unit. In this way it will be seen that the wording on the sign can be controlled similarly to the way that a sentence may be written on the typewriter. The last lever 30^a is then to be used merely as a

shift lever, not controlling any plunger so that one sign unit may remain blank, if desired. The arrangement is also such that a guide slot 36 is provided between certain parts of the framework 23 so that a strip 37 may be inserted and held in place between the posts 38 and 39. Each strip may be suitably perforated by the plungers 40 which are controlled respectively by the levers 30. Thus spring pressed plungers 40 are adapted to be pushed downwardly by the levers 30 to contact with the plungers 25. At the same time that these plungers 40 are pressed downwardly, a hole is punched in the strip 37, thus forming a templet of this strip which can be used in connection with a master control device of the general character shown in my said co-pending application. The plungers 25 are spring controlled as readily seen from the illustration. A holding circuit is provided for each magnet 16 as shown in Fig. 1 by way of the conductor 41.

From what has been described it is thought the nature of my invention will be readily clear to those skilled in the art. Having however thus described one form which my invention may take, what I claim as new and desire to secure by Letters Patent is:

1. In a system of the character described the combination with a plurality of sign units each having a plurality of lamps adapted when selectively actuated to portray unlike characters, a control board for said units having a plurality of sections corresponding in number to the sign units, a plurality of electromagnetic means for each sign unit, each electromagnetic means having mechanism to control the selection on its corresponding sign unit of a given character, circuit terminals forming part of said control board to control the actuations of said electromagnetic means, said circuit terminals being arranged in sections, and an actuating device progressively movable over said control board from section to section having manually controlled keys corresponding to the different characters to select for operation any given electromagnetic means aforesaid through the control by said actuating device of circuit terminals corresponding to the desired electromagnetic device.

2. In a system of the character described the combination with a plurality of sign units each having a plurality of lamps adapted when selectively actuated to portray unlike characters, a control board for said units having a plurality of sections corresponding in number to the sign units, a plurality of electromagnetic means for each sign unit, each electromagnetic means having mechanism to control the selection on its corresponding sign unit of a given character, circuit terminals forming part of said control board to control the actuations of said electromagnetic means, said circuit terminals being arranged in sections, an actuating device progressively movable over said control board from section to section having manually controlled keys corresponding to the different characters to select for operation any given electromagnetic means aforesaid through the control of said actuating device of circuit terminals corresponding to the desired electromagnetic device, said actuating device having plungers to effect the control aforesaid, and means for securing a templet in a coöperating position relative to said actuating device whereby said plungers may perforate said templet in accordance with a legend to be exposed upon the said sign units.

3. In a system of the character described the combination with a plurality of sign units each having a plurality of lamps adapted when selectively actuated to portray unlike characters, a control board for said units having a plurality of sections corresponding in number to the sign units, a plurality of electromagnetic means for each sign unit, each electromagnetic means having mechanism to control the selection on its corresponding sign unit of a given character, circuit terminals forming part of said control board to control the actuations of said electromagnetic means, said circuit terminals being arranged in sections, means whereby said electromagnetic means maintain their actuated position upon actuation, means to control the restoring of all actuated electromagnetic means, and an actuating device progressively movable over said control board from section to section having manually controlled keys corresponding to the different characters to select for operation any given electromagnetic means aforesaid through the control by said actuating device of circuit terminals corresponding to the desired electromagnetic device.

4. In a system of the character described the combination with a plurality of sign units each having a plurality of lamps adapted when selectively actuated to portray unlike characters, a control board for said units having a plurality of sections corresponding in number to the sign units, a plurality of electromagnetic means for each sign unit, each electromagnetic means having mechanism to control the selection on its corresponding sign unit of a given character, circuit terminals forming part of said control board to control the actuations of said electromagnetic means, said circuit terminals being arranged in sections, means whereby said electromagnetic means maintain their actuated position upon actuation, means to control the restoration of all actuated electromagnetic means, and an actuating device

progressively movable over said control board from section to section having manually controlled keys corresponding to the different characters to select for operation any given electromagnetic means aforesaid through the control by said actuating device of circuit terminals corresponding to the desired electromagnetic device, said actuating device having plungers controlled by said keys to effect the control aforesaid.

In witness whereof, I hereunto subscribe my name this 14th day of July, A. D. 1916.

MALCOLM E. LAUNBRANCH.

Witnesses:

HAZEL A. JONES,

MAX W. ZABEL.