June 12, 1923. 1,458,180

J. H. HAMMOND, JR

ADVERTISING DEVICE

Original Filed June 1, 1916 2 Sheets-Sheet 1

Fig. 1

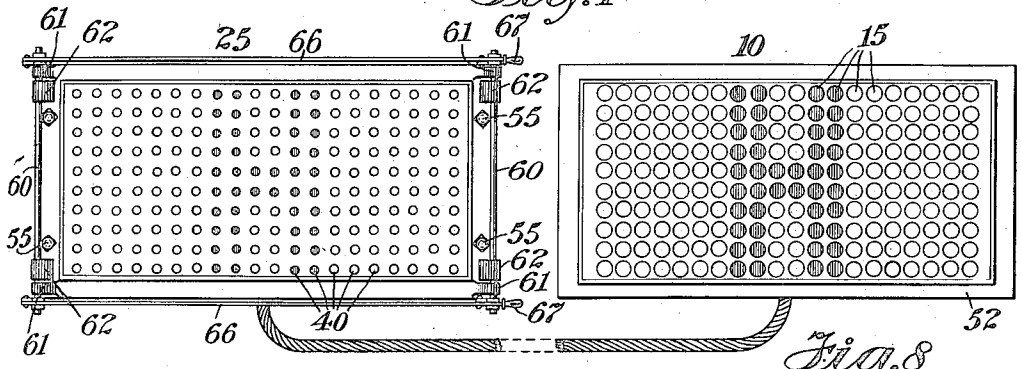


Fig. 8

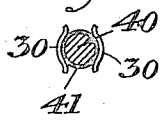
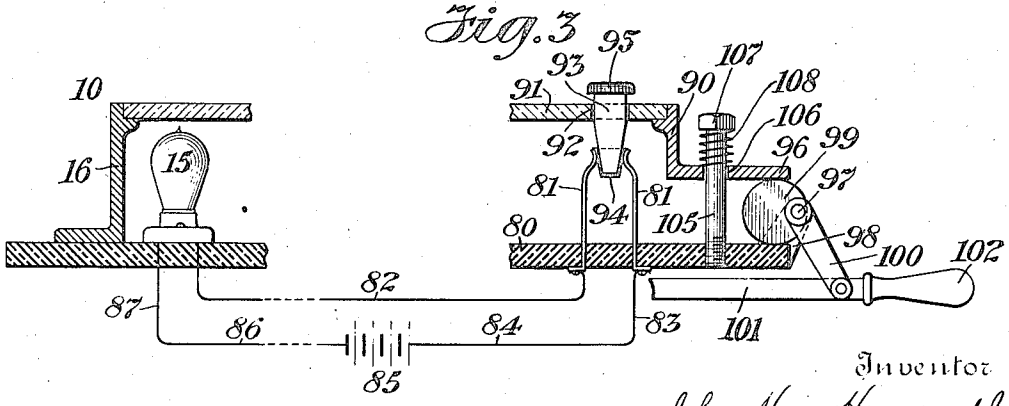


Fig. 2

Fig. 3



Inventor

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By his Attorney

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Fig. 4

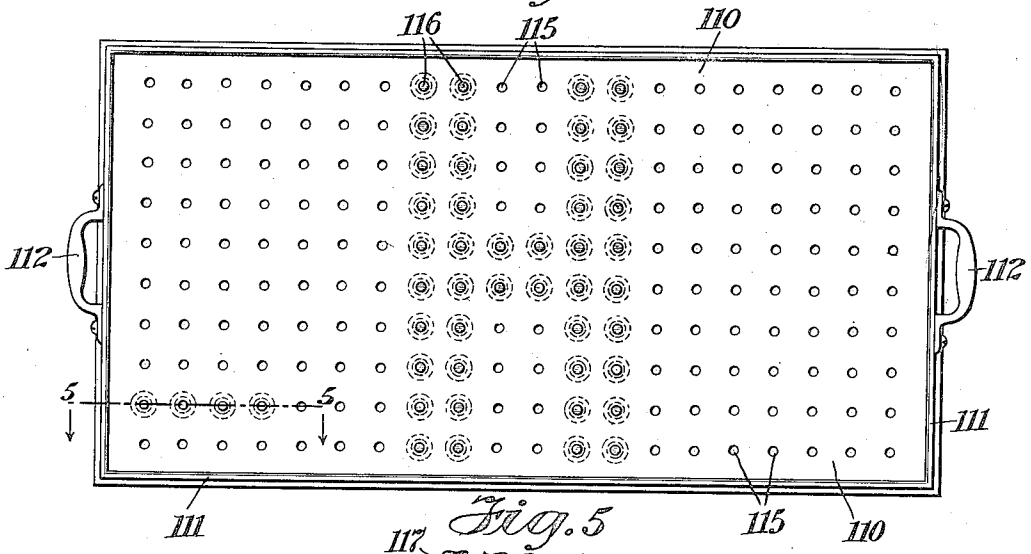


Fig. 5

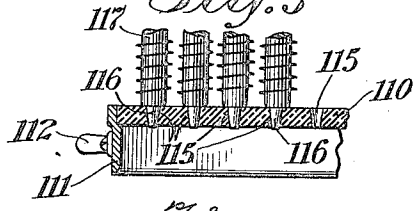


Fig. 6

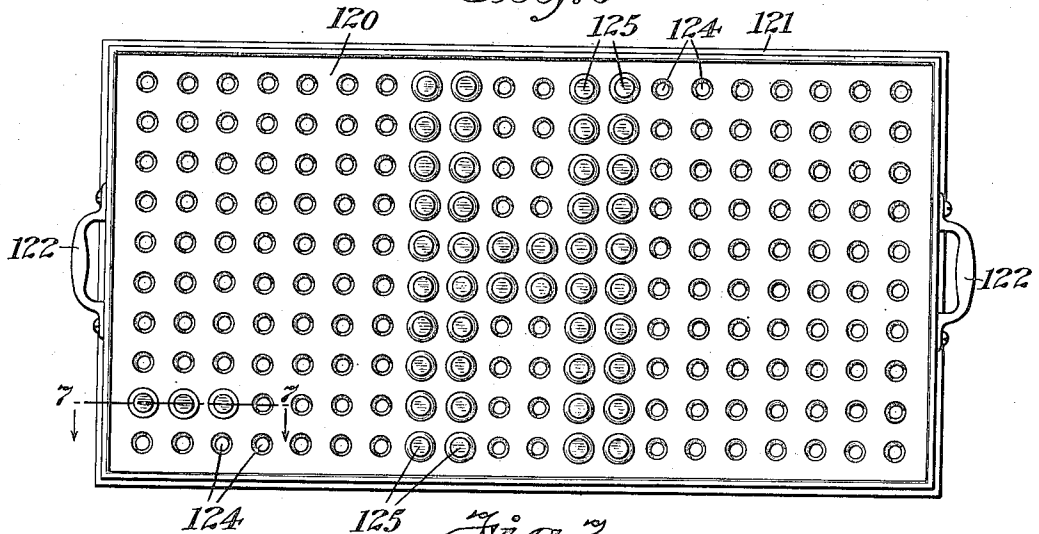
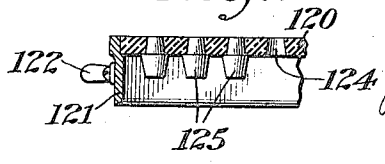


Fig. 7



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UNITED STATES PATENT OFFICE.

JOHN HAYS HAMMOND, JR., OF GLOUCESTER, MASSACHUSETTS.

ADVERTISING DEVICE.

Application filed June 1, 1916, Serial No. 101,106. Renewed October 5, 1921. Serial No. 505,565.

To all whom it may concern:

Be it known that I, JOHN HAYS HAMMOND, Jr., a citizen of the United States, and a resident of Gloucester, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Advertising Devices, of which the following is a specification.

Some of the objects of this invention are to provide an improved advertising device in which any desired line, figure, symbol or design may be conveniently caused to appear by the successive or the simultaneous illumination of a corresponding number of lamps; to provide in an illuminated advertising device improved means for controlling the illumination of any number of selected lamps; to provide in an illuminated advertising device improved means for simultaneously extinguishing a plurality of lamps; and to provide other improvements as will appear hereinafter.

In the accompanying drawings Fig. 1 is a diagrammatic plan view of an illuminated advertising device constructed in accordance with this invention; Fig. 2 is an enlarged diagrammatic view of the advertising device shown in Fig. 1 but with the principal parts shown in longitudinal section, and for convenience in a different arrangement from that shown in Fig. 1 and with some of the details omitted; Fig. 3 is a fragmentary diagrammatic view of a modified form of this invention showing the parts enlarged and in longitudinal section with many of the details omitted; Fig. 4 is a bottom plan view of a device constructed in accordance with this invention for simultaneously controlling a plurality of lamps in the form of this invention shown in Figs. 1 and 2; Fig. 5 is a longitudinal section on line 5—5 of Fig. 4; Fig. 6 is a bottom plan view of a modified form of device for simultaneously controlling a plurality of lamps in the form of this invention shown in Fig. 3; Fig. 7 is a longitudinal section on line 7—7 of Fig. 6; and Fig. 8 is an enlarged transverse section on line 8—8 of Fig. 2.

Referring to the drawings, one embodiment of this invention comprises an illuminating device 10 including a flat rigid base 11 preferably made of insulating material such as glass, porcelain or any other suitable material upon which are rigidly secured a plurality of suitable sockets 12 in which are arranged a corresponding plurality of electric lamps 15. The lamps 15 may be arranged in any suitable manner but in the form of this invention shown in the drawings these lamps are arranged in the same plane and at the points of intersection of one series of parallel equi-spaced lines with another series of parallel equi-spaced lines which intersect the first mentioned series at right angles thereto forming squares, all of the lines being arranged in the same plane. For the purpose of protection the lamps 15 may be arranged within a suitable rectangular frame 16 which is secured to the base 11 and which marginally supports a flat rectangular plate 17 of glass or other transparent or translucent material which extends over the lamps.

For controlling the lamps 15 a controlling device 25 is provided comprising a flat rigid base 26 of insulating material such, for instance, as glass or fiber, or of any other suitable material, spaced above and parallel to which is a flat substantially rigid platform 27 formed of insulating material such, for instance, as glass or fiber, or any other suitable material, which is held in parallel and fixed relationship to the base 26 by means of any suitable posts 28 which are terminally secured to the base 26 and to the platform 27. Rigidly secured to and projecting upwardly from the platform 27 are a plurality of pairs of resilient yielding contacts 30. The two contacts 30 of each pair of these contacts extend through the platform 27 and are connected respectively by a conductor 31 to one terminal of a corresponding lamp 15, and by a conductor 32 to a common conductor 33 which leads to one pole of a battery 34, the other pole of which is connected by a common conductor 35 and a branch conductor 36 with the other terminal of the corresponding lamp 15.

Between each pair of yielding contacts 30 is arranged a downwardly tapering plug or switch member 40 which is circular in cross section throughout its length and made of conducting material such as iron or other suitable magnetic material, and the upper portion of which is surrounded by a substantially cylindrical collar 41 made of in-

sulating material such, for instance, as fiber, which is rigidly secured to the plug 40 and which is arranged to be engaged by the corresponding yielding contacts 30 when the plug 40 is in an inoperative position with its lower end in contact with the platform 27. The upper portions of the yielding contacts 30 are preferably concave in transverse section as shown in Fig. 8 so as to maintain the plugs 40 at all times in positions substantially perpendicular to the platform 27. The plugs 40 are arranged in a manner similar to the arrangement of the lamps 15. Spaced above the plugs 40 when the plugs are in inoperative positions is a flat substantially rigid, comparatively thin transparent plate 50 of insulating material, such, for instance, as glass or other suitable material, which is arranged in a plane parallel to the platform 27 and which is marginally and rigidly secured to and supported by a rectangular rigid frame 51 which surrounds and is spaced from the platform 27 and which is provided with a flat rectangular flange 52 rigid therewith and projecting outwardly therefrom. For holding the frame 51 yieldingly in position, a plurality of bolts 55 extend loosely through corresponding apertures 56 provided therefor in the flange 52 and are rigidly secured to the base 26. The upper ends of these bolts 55 are provided with heads 57 arranged to limit the upward movement of the frame 51. Surrounding each bolt 55 and between the flange 52 and the base 26 is a spiral spring 58 which is normally compressed and normally tends to force the frame 51 upwardly into its uppermost position.

For pressing the frame 51 downwardly to move the plugs 40 simultaneously into inoperative positions, a pair of parallel shafts 60 are arranged above and parallel to the opposite ends of the flange 52 and are supported to rotate about fixed axes in spaced bearings provided therefor in standards 61 projecting upwardly from and rigid with the base 26. Surrounding and rigidly secured to each shaft 60 are a pair of coaxial cylindrical cams 62 which are arranged eccentrically with respect to the corresponding shafts 60. These cams 62 engage against the upper surface of the flange 52. Rigidly secured to the ends of each shaft 60 respectively are a pair of crank arms 65, and each crank arm 65 of one shaft 60 is pivotally connected to one end of a link 66, the other end of which is pivotally connected to the free end of the corresponding crank arm 65 of the other shaft 60, and each link 66 is provided at one end with the handle 67 for its convenient operation.

The construction is such that by moving the handle 67 towards the right from the position shown in Fig. 2, the cams 62 will be rotated in such direction as to press the frame 51 downwardly and to cause the plate 50 to press downwardly and into inoperative positions the plugs 40 which may have been in operative positions at the beginning of the downward movement of the plate 50. By then moving the handle 67 towards the left the frame 51 will be allowed to be pressed upwardly by the springs 58 while the plugs 40 will remain in inoperative positions. For lifting or moving successively any number of the plugs 40 an electromagnetic tracer is provided comprising a core 70 of soft iron, which is preferably tapered at one end as at 71 and is surrounded by a coil 72 of insulated wire, one end of which is connected by a flexible conductor 73 with one pole of a stationary battery 74, the other pole of which is connected by a flexible conductor 75 to the other end of the coil 72. By holding the core 70 in a position perpendicular to the plate 50 and moving the core over the plate with the small end 71 of the core against the plate, any number of the plugs 40 may be magnetically attracted from an inoperative into an operative position at the will of the operator. When any plug 40 is in its uppermost position against the plate 50 the cylindrical collar 41 is above the corresponding yielding contacts 30 and allows the yielding contacts 30 to engage against the surface of the plug 40, thus closing the circuit between the corresponding yielding contacts 30 and causing an illumination of the corresponding lamp 15. Thus, by suitably moving the core 70, any desired line, figure, symbol or design may be displayed in lighted lamps by the illuminating device 10, and all of the lighted lamps may be extinguished at any time by suitably moving the handle 67 of the controlling device as hereinbefore described.

In the modified form of this invention shown in Fig. 3, the illuminating device 10 is constructed as hereinbefore described, but instead of the hereinbefore described electromagnetic controlling device 25, a modified form of controlling device is utilized which comprises a flat rigid base 80 of insulating material, to which are secured a plurality of pairs of yielding contacts 81 which extend through the base 80, one contact 81 of each pair being connected by a conductor 82 to one terminal of a corresponding lamp 15, and the other yielding contact 81 of each pair being connected by a branch conductor 83 to a return conductor 84 leading to one pole of a battery 85, the other pole of which is connected to a common conductor 86 which is connected by a branch conductor 87 to the other contact of each corresponding lamp 15. Spaced above the base 80 and parallel thereto is a rigid rectangular frame 90 which surrounds and marginally supports a flat substantially rigid rectangular plate 91 of insulating ma-

terial such, for instance, as glass, rigidly secured to the frame 90. This plate 91 is provided with a plurality of circular apertures 92 which are arranged in alinement respectively with the pairs of yielding contacts 81. In each aperture 92 is loosely arranged a plug 93 of conducting material such, for instance, as brass, which tapers inwardly and the inner portion of which is covered by a cap 94 of insulating material such, for instance, as fiber or other suitable material which, when the plug 93 is in its inoperative position shown in Fig. 3, rests against the corresponding yielding contacts 81 and insulates these contacts from the plug.

The plug 93 is provided with a head 95 of insulating material, which is rigidly secured to the plug 93 and which is normally spaced above the plate 91 when the plug is in an inoperative position as shown in Fig. 3. When the plug 93 is pressed downwardly from the position shown in Fig. 3 to its lowermost position, with its head 95 in contact with the plate 91, then the cap 94 is moved downwardly out of engagement with the yielding contacts 81 which are allowed to move into engagement with the plug 93 and thus close the circuit between the contacts 81 and thus cause the illumination of the corresponding lamp 15. The yielding contacts 81 and the plugs 93 are arranged in a manner similar to and corresponding to the arrangement of the lamps 15, each lamp 15 being provided with a corresponding pair of yielding contacts 81 and plug 93.

For simultaneously moving any number of the plugs 93 from operative into inoperative positions, each end of the frame 90 is provided with a flat flange 96 integral and rigid therewith, and which is arranged parallel to the base 80. Between each flange 96 and the base 80 is arranged a shaft 97 which is mounted to rotate about a fixed axis coincident with its longitudinal axis in suitable bearings 98 projecting upwardly from and rigid with the base 80. Rigidly secured to each shaft 97 is a cylindrical cam 99, the longitudinal axis of which is parallel to the longitudinal axis of the shaft 97. Each shaft 97 is also provided with a crank arm 100 rigidly secured thereto, and the outer end of the crank arm 100 of one shaft 97 is pivotally connected to one end of a link 101, the other end of which is pivotally connected to the crank arm 100 of the other shaft 97. One end of the link 101 is provided with a handle 102, and the construction is such that when the handle 102 is moved in one direction the cams 99 will be rotated in such a manner as to raise the frame 90 and to simultaneously move or lift any number of plugs 93 from operative into inoperative positions, and when the handle 102 is moved in the opposite direction the cams 99 will be moved in such a direction as to permit the frame 90 to move downwardly into the position shown in Fig. 3. The frame 90 is restrained to move in a predetermined path towards and away from the base 80 by means of a plurality of bolts 105 which are rigid with the base 80 and which extend loosely through apertures 106 provided therefor in the flanges 96. The tapered end of each bolt 105 is provided with a head 107, and surrounding each bolt between its head 107 and the flange 96 is a normally compressed spiral spring 108, which always tends to force the corresponding flange 96 against the corresponding cam 99. In this modified form shown in Fig. 3, when it is desired to cause the illumination of any number of lamps the corresponding plugs 93 are pressed down manually, and when it is desired to extinguish the lamps the handle 102 is moved towards the left from the position shown in Fig. 3, thus raising all of the plugs which have been pressed downwardly and breaking the circuits through the plugs 93.

For simultaneously lighting any predetermined number and arrangement of the lamps in the form of the invention shown in Figs. 1 and 2, this invention provides means comprising (see Figs. 4 and 5) a flat substantially rigid rectangular base 110 made of insulating material such, for instance, as glass, porcelain or fiber, and of approximately the same length and width as the length and width of the hereinbefore described frame 51. Surrounding and rigidly secured to this base 110 is a rectangular frame 111 which, for convenience of operation, is provided with handles 112 rigidly secured thereto. The frame 111 is proportioned to fit snugly but slidably around the hereinbefore described frame 51. The base 110 is provided with a plurality of tapered apertures 115 which are so arranged that when the frame 111 is placed around the hereinbefore described frame 51 each plug 40 will be opposite a corresponding one of the apertures 115 in the base 110. Each of these apertures 115 is adapted to receive the smaller tapered end 116 of an electromagnet 117. A sufficient number of the electromagnets 117 are provided to produce any desired line, figure, symbol or design upon the base 110, and each of the electromagnets 117, when placed in position in the base 110 is connected to a suitable battery or other source of electric energy whereby when the base 110 is superimposed upon the plate 50 a plurality of the plugs 40 corresponding in number and arrangement to the number and arrangement of the electromagnets 117 will be attracted into operative positions to close the corresponding circuits and to illuminate the corresponding lamps 15.

For simultaneously illuminating any desired number and arrangement of the lamps in the form of this invention shown in Fig.

3, a flat rectangular base 120, of insulating material and of approximately the same length and width as the hereinbefore described plate 91, is provided and is surrounded by and rigidly secured to a rectangular frame 121 which is proportioned to fit snugly but slidably about the hereinbefore described frame 90. This frame 121 is provided with one or more handles 122 for convenience of operation.

The base 120 is provided with a plurality of tapered apertures 124 arranged so that when the frame 121 is in position around the frame 90 each plug 93 will be opposite a corresponding aperture 124. A plurality of tapered studs 125 are provided which are adapted to be arranged in any suitable desired manner in the apertures 124 and to be frictionally and securely held in position therein. These studs 125 may be made of any suitable material but preferably of comparatively non yielding material which will be effective to press the hereinbefore described plugs 93 into operative positions. It is evident that by arranging a suitable number of studs 125 in any desired arrangement in the apertures 124 of the base 120 and then placing the frame 121 around the frame 90 and pressing downwardly upon the frame 121, a corresponding number and arrangement of lamps 15 will be simultaneously illuminated, and by removing the frame 121 and suitably moving the handle 102, all of the lamps thus lighted may be simultaneously extinguished.

Although only a few of the forms in which this invention may be embodied have been shown herein, it is understood that this invention is not to be limited to any specific construction, but might be embodied in various forms without departing from the spirit of this invention or the scope of the appended claims.

Having thus fully described this invention, I claim:

1. Electrical switching means comprising a plurality of magnetic switch members arranged to be reciprocated respectively in predetermined straight paths and separately movable from inoperative into operative positions, and means movable in a predetermined path for simultaneously moving a plurality of said switch members from operative into inoperative positions.

2. Electrical switching means comprising a plurality of magnetic switch members arranged to be reciprocated respectively in predetermined straight substantially parallel paths and separately movable from inoperative into operative positions and means movable in a predetermined path for simultaneously moving a plurality of said switch members from operative into inoperative positions.

3. Electrical switching means including a plurality of separately movable magnetic switch members and a transparent plate covering said members and movable to move a plurality of said members simultaneously from operative into inoperative position.

4. Electrical switching means including a plurality of magnetizable separately movable switch members, and a transparent plate of insulating material covering said members and movable to move a plurality of said switch members simultaneously from operative into inoperative positions.

5. Electrical switching means including a plurality of magnetizable separately movable switch members, and a transparent plate of insulating material covering said members and movable to move a plurality of said switch members simultaneously from operative into inoperative positions, and means movable with respect to said plate in a predetermined path to move said plate in a predetermined path for simultaneously moving said switch members into inoperative positions.

6. An electrical switch system comprising a plurality of switch members normally arranged in inoperative positions substantially in the same plane and separately movable respectively from said inoperative position into operative positions, and a plate covering said members and through which the positions of said members may be viewed, said plate being movable in a predetermined path for moving a plurality of said members simultaneously from operative into inoperative positions.

7. An electrical switching system comprising a plate movable through a predetermined path from an operative into inoperative position, a plurality of switch members arranged upon one side of said plate and separately movable in predetermined paths respectively towards and away from said plate, the positions of said members being operatively discernible through said plate and said plate being operative while moving from operative into inoperative position to move a plurality of said members from operative into inoperative positions.

8. An electrical switching system comprising a plate movable through a predetermined path from operative into inoperative position, a plurality of switch members arranged upon one side of said plate and separately movable in predetermined paths respectively towards and away from said plate, the positions of said members being operatively discernible through said plate, and said plate being operative while moving from an operative into an inoperative position to move a plurality of said members simultaneously from operative into inoperative positions.

9. An electrical switching system compris-

ing a plate movable through a predetermined path from an operative into inoperative position, a plurality of switch members arranged upon one side of said plate and separately movable in predetermined paths respectively towards and away from said plate, the positions of said members being discernible through said plate, and said plate being operative while moving from operative into inoperative position to move a plurality of said members from operative into inoperative positions, and means adapted to be moved across said plate upon the other side thereof for causing said members to be selectively moved magnetically from inoperative into operative positions.

10. An electrical switching system comprising a plate movable through a predetermined path from an operative into inoperative position, a plurality of switch members arranged upon one side of said plate and separately movable in predetermined paths respectively towards and away from said plate, the positions of said members being operatively discernible through said plate, and said plate being operative while moving from an operative into an inoperative position to move a plurality of said members simultaneously from operative into inoperative positions, and means adapted to be moved across said plate upon the other side thereof for causing said members to be selectively moved magnetically from inoperative into operative positions.

11. The combination with a plurality of magnetic, separably movable switch members, and a plate covering said members and adapted to serve as a guide for a magnet for moving said members selectively from inoperative to operative positions when said magnet is moved over said plate while said plate is interposed between said members and said magnet, said plate being movable in a predetermined path to move a plurality of said members simultaneously from operative to inoperative positions.

12. The combination with a movable magnet, of a plurality of separately movable electric switch members selectively operable under the influence of said magnet, and a plate interposed between said switch members and said magnet serving as a guide for said magnet, said plate being movable to move a plurality of said switch members simultaneously from operative to inoperative positions.

Signed at Gloucester, in the county of Essex and State of Massachusetts, this 26th day of May, A. D. 1916.

JOHN HAYS HAMMOND, Jr.

Witnesses:
Wm. E. Kerr,
Leslie Buswell.