J. P. NAYLOR.

APPARATUS FOR DISPLAYING ADVERTISEMENTS, SIGNALING, AND THE LIKE.

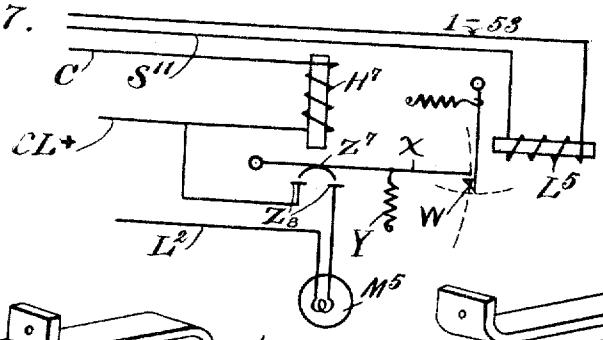
APPLICATION FILED AUG. 2, 1911.

1,191,023.

Patented July 11, 1916.

2 SHEETS—SHEET 1.

Fig. 7.



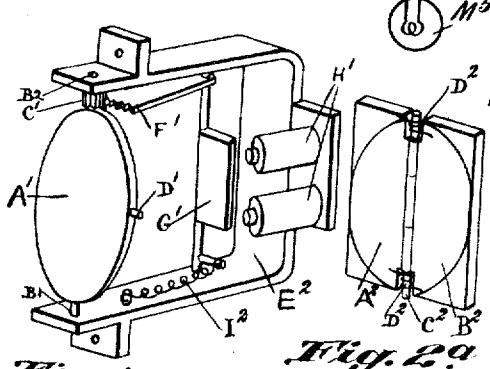


Fig. 1.

Fig. 2a.

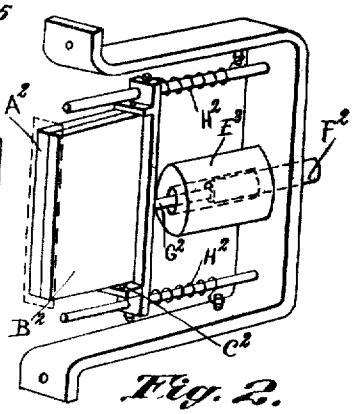


Fig. 2.

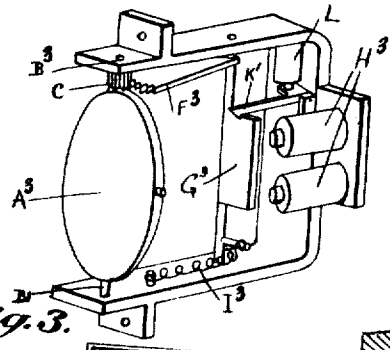


Fig. 3.

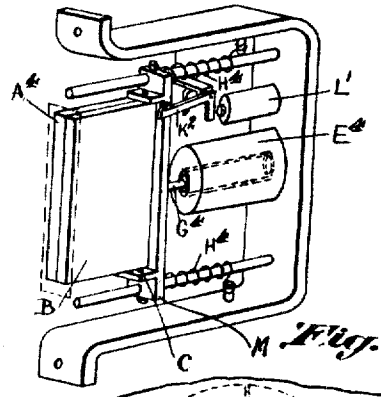


Fig. 4.

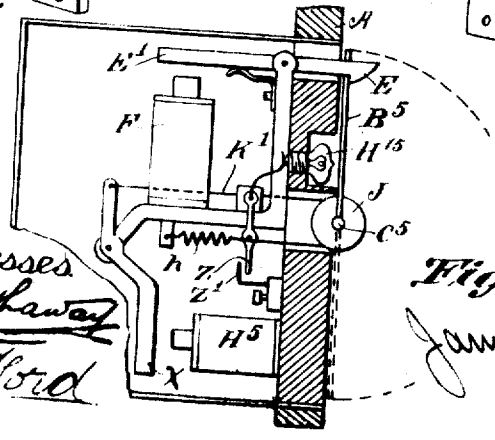


Fig. 5.

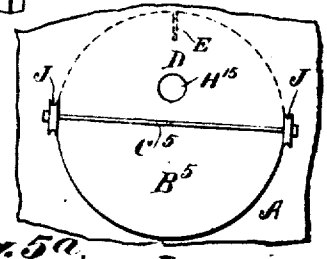


Fig. 5a.

Witnesses
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2 SHEETS—SHEET 2.

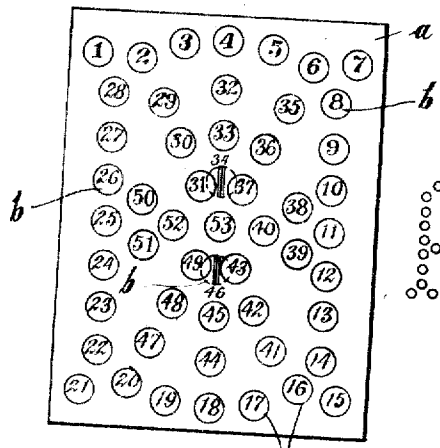


Fig. 8.

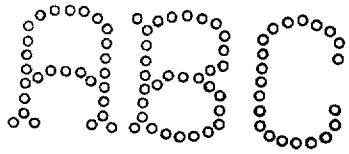


Fig. 9.

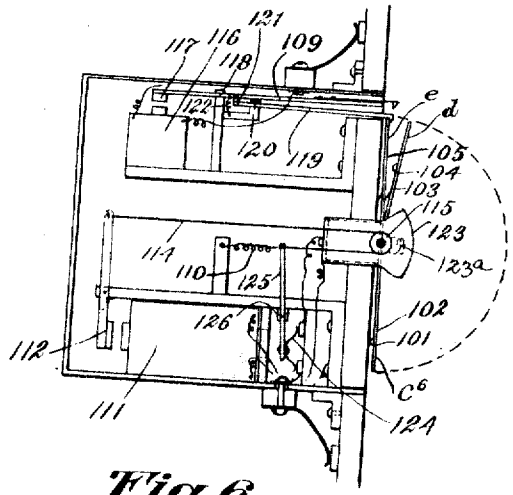


Fig. 6.

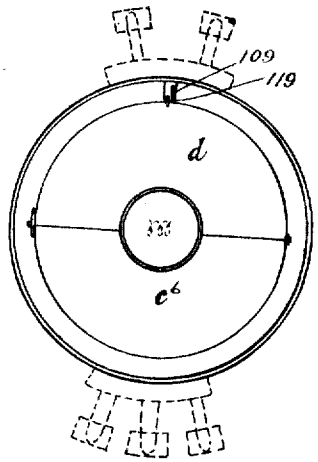


Fig. 6a

Witnesses
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UNITED STATES PATENT OFFICE.

JAMES PRIESTNALL NAYLOR, OF DULWICH, LONDON, ENGLAND.

APPARATUS FOR DISPLAYING ADVERTISEMENTS, SIGNALING, AND THE LIKE.

1,191,023. Specification of Letters Patent. Patented July 11, 1916.

Application filed August 2, 1911. Serial No. 642,030.

To all whom it may concern:

Be it known that I, JAMES PRIESTNALL NAYLOR, a subject of the King of England, residing at Dulwich, London, in England, have invented a certain new and useful Improvement in Apparatus for Displaying Advertisements, Signaling, and the like, of which the following is a specification.

This invention relates to apparatus for displaying advertisements, signaling or the like, or communicating messages by day and by night whereby letters or characters, devices or designs are displayed or caused to appear by day due to the display of a plurality of members dissimilarly colored from the supporting background, and selectively exposed so as to build up or form any desired character or letter, and by night or during darkness the letters or characters may be rendered visible due to artificial light being projected upon the surface of the sign, or by means of lamps individual to each display section or element being illuminated or extinguished in synchronism with the display or non-display of the visual member the light from each lamp being confined to and used for the illumination of the surface of such member. Alternative means may also be utilized whereby lamps are used to define the relative position of the visual member without illuminating its whole surface whereby the display characters are brilliantly outlined with lamps giving the appearance common to electric light signs. For the purpose of simplifying my description, I shall herein use the term:—Day to denote that the sign is situated or constructed for use with light falling upon its surface. Night to denote that the sign is situated in darkness or constructed with its display members capable of being individually illuminated. Element to denote a display member or section dissimilarly colored from the intended support or background together with its individual operating mechanism and also comprising an electric lamp capable of being illuminated when the non-luminous member is displayed and extinguished when such member assumes the non-display position. Day element to denote a similar structure but without an individual lamp. Night element—similar mechanism of the element, but without the daylight visual member. Multicolor element, an element capable of displaying more than one color. Luminous visual member, the lamp utilized for illuminating or defining the visual member by night or in darkness. Visual member, the disk or flap visible by day with light projected upon its surface. Monogram to denote a support or background constructed to retain a plurality of elements which may be displayed in such formation that the successive display of dissimilar group of elements will form or define two or more characters. Sign to denote an assemblage of monograms or display members together with their supporting background and controlling means. Clearing to denote the action or returning all elements to their non-display position. Cleared to denote a sign with all its elements in the non-display position.

One object of my invention is to construct elements with their visual members together with individual operating mechanism and means for illuminating and extinguishing their individual lamps as a self-contained unit or element, and in order to facilitate the manipulation of such elements when applying them to or inserting them into the monogram or other suitable supports each element is provided with electrical contacting means so that with a group of such similar elements they may be readily assembled, replaced or interchanged.

Another object is to construct elements whereby color changing effects may be produced by day due to the provision of and successive exposure of a plurality of dissimilarly colored visual members, and means whereby such effects may be produced by night are firstly obtained by providing a clear lamp with a reflector to confine its light to the colored visual members and to screen the white light from the eye of the observer, and secondly, by providing a group of lamps preferably colored to match the visual members, and means whereby each lamp may be illuminated or extinguished in synchronism with the exposure of the dissimilar visual members.

Further means are also disclosed whereby the dissimilarly colored visual members may be exposed successively due to the step

by step action of a detent operated by a single electromagnet or alternatively by means of a group of magnets and detents so that the desired color may be selectively operated without passing through a prearranged sequence as is the case with the step by step action.

Another object is to provide novel means of support for a plurality of preferably similar sized elements, such support consisting of or forming a background provided with perforations or cells combined with electrical connectors so that when the elements are inserted into such cells or perforations their correct electrical connection is facilitated or automatically made by the action of inserting them, thus simplifying the removal and replacement of elements which might become necessary in the case, for example, of it being desirable to rectify a fault, and in order that all letters of the alphabet and numerals 0 to 9 may be displayed in legible and conventional form from a comparatively small number of similar sized and shaped visual members I have designed a special formation of monogram.

A further object is to provide the elements with locking or retaining means so as to hold the visual member in the display and non-display position and I describe and illustrate two methods whereby this may be done, first where a spring normally operates to retain the element in the non-display position, the excitation of the electromagnet causing the element to display also and to retain it in the display position during the continuance of its excitation, thus the spring provides retaining means to hold the element in one position, and the magnet acts not only as the motive power to cause display, but after display retains the visual member in the display position. This type of element therefore, consumes energy in its magnetic operating device during the period of display, and is suitable for controlling in groups by known methods previously applied to the control of electric lamps in groups.

I have also devised elements whose visual members or contacts are held in both the display and non-display position without consuming energy. In each of these elements the visual member is normally brought to and held in the display position by means of a spring or gravity and a spring and gravity combined and is held in the non-display position by means of a lock or catch so that no current is consumed during the period of display or non-display, the said visual member being returned by electromagnetic means to the non-display position against the tension of the spring that causes the display of the visual member where it is held by a lock or catch; current being only consumed during the excitation of the magnetic means for releasing the catch, and during the period of excitation necessary for returning the visual member to the catch against the spring or gravity tension. These elements are, therefore, constructed with two magnetic functions, one to cause display and the other to cause non-display. I am aware that means have been devised whereby two separate magnets have been utilized to operate a visual member, one to bring the element into the display position, and the other to bring it into the non-display position, but my reason for devising the novel means of operating one type of element which I disclose herein is that the elements may be displayed by utilizing an electric current of small power and short duration due to the fact that display is caused by the action of a spring under tension which has only to be released by the display impulse, thus rendering them particularly suitable for a system of control described in my divisional specification Serial No. 789930, (division of this application) wherein means are described for controlling a plurality of similar monograms from a single composing keyboard which by the action of manually or automatically operable selector switches places each monogram successively or selectively in relation to the composing keyboard so that any character determined by such composing device may be produced, displayed, or delineated upon the monogram that may be determined by the selector switches so that the ability of the elements to respond to an application of energy small in amount and of short duration is of importance as it allows a controller of the type described in the said specification to rapidly set or display a plurality of dissimilar letters upon a plurality of monograms and due to the small amount of energy required, and it enables the contacting device upon such controller to be of the smallest possible dimensions. The special means of control disclosed in such divisional specification also describes means whereby groups of elements forming each monogram may be collectively or individually energized so that the whole sign may be simultaneously cleared of displayed letters or characters, or an individual monogram may be selectively cleared, but it will be understood that although my elements require application of energy of greater amount and longer duration in order to bring them into the non-display position, yet my method of connecting all the clearing or non-displaying coils to one circuit enables a plurality of monograms to be cleared in the same period that it would take to clear one element.

As I have already stated, I combine an electric switch upon each element for the purpose of controlling the supply of elec-

tricity to the individual lamp forming the luminous visual member of an element, and such switch can be of very simple construction because in my system of control I provide one master switch to a convenient group of monograms, or to each monogram, so that by interrupting the circuit by means of the said master switch before the individual element switches are opened and making the circuit after the individual switches are closed the local element switches do not make and break their circuits with electricity flowing thus relieving their contacts of liability to burn or be damaged, the more substantial master switch being constructed to take all the wear and tear of this duty. This division of circuits therefore enables the lighting circuits and the two control circuits to be operated if desired upon three separate circuits of varying voltage. As signs of the type that I describe herein are principally used in outdoor positions the desirability of locking or otherwise securely holding the visual members in the display or non-display position so as to prevent the disturbance by wind will be apparent.

I have introduced this short description of my method of control and the uses to which I may put my signs composed of assemblage of elements as described herein in order that the objects of my invention may be better understood.

With the above object in view, my invention consists in the combination and arrangement of the parts as will hereinafter be fully described and claimed.

The annexed drawings illustrate examples of construction of my invention, in which—

Figures 1, 2, 3, 4 are perspective views illustrating various embodiments of elements. Fig. 2^a is a perspective view of a displayed visual member of Figs. 2 and 4. Fig. 5 is a diagrammatic side elevation on an enlarged scale of a flap element in the non-display position. Fig. 5^a is a front view of the same in the display position. Fig. 6 is a section on an enlarged scale of an element for the production of differently colored characters, Fig. 6^a a front view of Fig. 6. Fig. 7 is a diagram showing the internal electrical connections of an individual single color member, provided with a lamp. Fig. 8 is a diagram displaying the monogrammic arrangement of the elements. Fig. 9 illustrates the appearance of the letters A, B, C, formed by operating the necessary members.

I will now proceed to describe in detail the method of constructing the various forms of elements all of which have common characteristics that each element comprises or may comprise the disk or flap or the like member for daylight display, mechanism operating said member, and a lamp for night display together with means for its individual control embodied in a self contained device capable of being inserted in or attached to the support or removed therefrom as a whole, and provided with means to facilitate its correct electrical connection to the operating circuits.

Figure 1 represents an element possessing or capable of the previously described characteristics but operating a rotating visual member. The member A^1 is supported by two pivots B^1 and B^2, the pivot B^2 carrying a pinion C^1. The member is supported so as to be rotatable in its supporting frame about the two pivots B^1, B^2, a suitable stop, such as the projection D^1 engaging with the aperture of or in the supporting monogram (not shown) said stop being provided to prevent the member rotating through a greater angle than 180°. The frame E^2 carries a lever with a rack F^1 at one end and an iron armature G^1 at the other end. An electromagnet H^1 is mounted in such position as to attract the iron armature G^1 toward it when the magnet H^1 is sufficiently energized. It will be seen that the magnet and frame are mounted behind the member which it is intended to operate, in such manner that the pinion C^1 gears with the rack F^1 so that when the magnet H^1 draws the armature G^1 toward it, it will cause the member to rotate at the same time increasing the tension on the spring 12 and maintaining it in this state until the coil H is de-energized. When the electric current is interrupted, the attraction of the electro-magnet H^1 for G^1 will cease and spring I^2 will return the visual member to its first position preferably with its side outward colored to match the screen or frame.

Fig. 2 illustrates an element working upon the same principle as Fig. 1, but with the visual member adapted to work in a slot so that the mechanism and display members occupy very little space when the said display members are returned to the position within the element as shown, which I prefer to utilize as the non-display position, the front of the element or the monogram is then provided with a slot of sufficient size to permit the egress of the visual member. It will also be seen that the operating mechanism can be confined to very narrow dimensions. The visual member A^2, B^2 shown displayed by Fig. 2^a, is then formed of two portions of suitable shape hinged down their center C^2, the surfaces A^2, B^2 being colored or rendered dissimilar to the ground or screen, a spring D^2 (Fig. 2^a) being arranged so that visual member will automatically open like a book when free to do so as by projection through the opening slot in the element or monogram face.

When the coil of the electro-magnet E^3

is energized it attracts the armature F^2, which is attached by means of a rod G^2 to the hinge D^2, and causes the folded member to be projected through an aperture formed in the element or monogram face whereupon the spring D^2 will open it like a book and thus cause display of the visual member upon the front or surface of the monogram or other support. When in this position the springs H^2 are brought under tension and after the coil E^3 is deënergized these springs will draw the visual member through its aperture causing it to close (against the tension of the springs D^2) bookwise with its faces A^2 and B^2 together and causing the visual member to assume its original non-display position with its edges only exposed which are preferably colored similar to the ground or screen.

Fig. 3 illustrates an element similar to Fig. 1, but provided with an additional magnetic system for causing the visual member to be locked in the non-display position, the coloration of the display member being reversed so that the spring 13 tends to always display the visual member. The movement operates in the following manner. The member A^3 is brought to its normal or non-display position by brief energization of the magnet H^3, the current being of sufficient duration to allow the magnet H^3 to rotate the visual member A^3 by means of a rack F^3 engaging with the pinion C on the member B^3 and at the same time bringing the spring I^3 under tension or increased tension. When the visual member has been rotated through a half revolution the armature G^3 engages with the catch K^1 so that when the attraction of the magnet H^3 ceases, the armature G^3 and the rack F^3 are detained against the tension of the spring I^3 consequently the visual member is held in the non-display position. To display the visual member a momentary current of electricity is caused to energize the electromagnet L which then lifts the catch K^1 and allows the visual member to rotate due to the tension of the spring I^3 and to operate through the armature G^3 and rack F^3, and pinion C, thus causing the member A^3 to rotate and display its side of different color to its monogram or supporting background.

Fig. 4 illustrates an element similar to Fig. 2, but provided with similar magnetic actuating means to that illustrated by Fig. 3, the action also being similar, the members A^4, B being brought to their non-display position by sufficient energization of the electromagnet E^4 which by attracting the core G^4, will bring the attached visual member into the non-display position against the tension of the springs H^4. When the visual member has been drawn into the non-display position the frame M is engaged by the spring catch K^2 so that when the magnet E^4 is deënergized the display members are held in the non-display position by the catch K^2 against the tension of springs H^4.

Brief excitation of the electro-magnet L^1 causes the catch K^2 to release and allows the display members A^4 and B to be projected through the screen into the display position as illustrated by Fig. 2^a, by means of the springs H^4.

Figs. 5 and 5^a illustrate the construction of an element provided with a single shutter by means of which the visual member is caused to assume the display and non-display position by means of its individual actuating mechanism. A represents the face of the sign, monogram or background, B^5 a semicircular flap or visual member attached thereto by means of its hinge C^5, one side of such visual member or flap being colored, or treated to match the surface of the face A of the monogram, and the other side so as to be readily visible when exposed upon the said face A. The section inclosed within the semicircle D is also colored to match the side of the flap which is dissimilar to the monogram face A so that when the surfaces B^5, D, are exposed a visual member of circular shape and colored dissimilar to the surface A is displayed, and when the semicircular section B^5 is brought so that it covers the surface D the said visual member is caused to disappear. A spring catch E is provided to retain the flap B^5 in its normal or non-display position, the catch E being so attached to its extension E^1 that when the electro-magnet F is energized the extension E^1 travels toward such magnet thus raising the catch E and releasing the flap, permitting it to rotate on its hinge C^5 due to the tension of the spring K acting through cord K^1 and thus causing the visual member to appear. A lamp H^{15} provides for luminous display by night when the visual member is operated into the display position; the cord K^1 or other convenient moving member is connected with a circuit closing device so that a circuit feeding the lamp H^{15} is made and broken in synchronism with the movement of the display member thus actuating the lamp circuit, the circuit being illustrated diagrammatically by Fig. 7 and explained hereinafter. To replace the semicircular flap in its normal or non-display position, tension is brought to bear upon the cord K^1 which acting on pulley J connected to the flap communicates its movement thereto, the said flap being then brought back to its normal or non-display position and retained by the catch E. For this purpose I provide a magnet H^5 adapted to be momentarily energized and which operates the lever X to which the cord K^1 is attached in such manner that when magnet H^5 is energized it attracts said lever X putting spring K under ten-

sion and allows cord K^1 to frictionally rotate pulley J. In this position the circuit feeding the illuminating device is operated to extinguish such lamp, by the cord K^1 also being attached to a switch Z so that it ceases to engage a contact Z^1 when the element is in non-display position, a reverse action taking place when the element is displayed. When the energization of magnet H^5 ceases and the flap B^5 is retained by catch E the friction exerted between the V-shaped periphery of pulley J and cord K^1 will prevent the spring K from drawing the armature X out of its normal position of rest. It will be noticed that when the flap is in the non-display position it is caused to inclose the lamp and it will also be seen that the lamp or luminous central surface is of smaller diameter than the visual member and is inset in the surface of such member thus preventing lateral distribution of light. This feature causes the lettering formed by night to have a clear sharp definition, and prevents the illumination of other attachments or parts that are located upon the monogram front A which might otherwise be rendered visible thereby. Multicolor elements are constructed in a similar manner to Fig. 5 by providing additional flaps closing one upon the other like the pages of a book; this form is illustrated in Figs. 6 and 6^a. The example shown is designed to give three changes, for example, white, red and green, and is therefore provided with a spring so that when it is freed from the catch 109 it will take up a position remote therefrom. The retaining hook is so constructed that when it is actuated it will only release one flap at a time it being necessary to energize the magnet 116 each time it is desired to cause a change of color to occur. This is accomplished by so constructing the catches 119, 109, that when one is lifted by the magnet 116 attracting the armature 117, this action causes the detent 119 (which has its retaining hook slightly in the rear of that of catch 109) to retain the remaining flaps by descending due to the action of the link 121 attached to the hooked lever 109 at a point between the pivot 118 and the pivot 120, so as to cause the detent 119 to descend behind catch 109 and thus retain any members not required to display, the member that will next display on excitation of the magnet 116 being then located in front of the detent 119 and therefore solely retained by catch 109. After the magnet releases the hooked lever 109, it descends due to the spring 122 into a position ready to release the next flap the detent 119 being lifted clear of the next flap so as to be ready to repeat this operation when the magnet receives the next impulse. In this example, it is assumed that the flap C^6 is colored black upon its face 101, as is also the lower portion of the element front, the monogram front being similarly colored, it will now be understood that when this flap is retained by the catch 109, no visual member is or can be displayed, when it is desired to display a white visual member the lever hook 109 is lifted, the flap C^6 then falls, exposing its white surface 102, and also the white surface 103 of the flap *d* thus exposing a white visual member. When it is desired to display a red visual member, the magnet 116 is again energized, and the operation of the hook and detent is repeated, dropping the flap *d* which being colored red upon its face 104, and the flap *e* also being colored red upon its face 105, will cause a red disk or visual member to display and by dropping the flap *e*, a green visual member or disk is caused to display, due to the flap *e* being colored green upon its surface 106, and exposing a part of the element body which has a green semicircle thereon, which with the flap forms a green disk.

Clearing is effected by the magnet 111 attracting the armature 112 which is pivoted at 113 causing rotation of the pulley 115 by means of the cord 114 against the tension of the spring 110. The pulley, being fixed to the spindle of the flap C^6, causes it to rise and engage with the retaining catch 109 so that if any of the flaps in addition to the flap C^6 have been released they must also be replaced by this action.

The element is illuminated in darkness by the lamp 123^a which is fitted in such position that its light may fall only upon the colored surface of the visual members; it is provided with a reflector 123 upon its top so as to screen the eye of an observer from its direct rays and to project its light only upon the surface of visual members, the flaps C^6, *d*, *e*, being cut away to accommodate it. The lamp is illuminated and extinguished due to the contact 124 being made when an element or flap is displayed and the contact is opened when the elements are cleared this being effected by means of a lever 125 attached to the cord 114 and the contact 124, and pivoted at 126.

Fig. 7 is a diagram showing the internal electrical connections of a mono-color element as described in connection with Figs. 3, 4 and 5. It is obvious that in the event of no electric lamp being fitted to these elements the conductors relating thereto will of course not be required, but if the daylight visual member is dispensed with the same electric system may be utilized. The conductor CL+ and L^2 are connected to a source of electricity through a separate circuit so that the element lamps may be illuminated or extinguished when these conductors are energized, and such main switch

may be worked in conjunction with the elements so as to relieve the whole of these contacts within the elements forming a monogrammic group or upon a sign from the duty of making and breaking the circuit. The electromagnetic coil H^7 is the clearing coil and corresponds to the coils H^3 on Fig. 3, E^4 on Fig. 4, and the coil H^5 actuating the cord K^1 of Fig. 5. These coils may be energized together in a large group such as a plurality of monograms or in separate groups such as individual monograms in order that the elements upon any panel or any group of panels may be selectively or collectively cleared. The trigger or display coil L^5 corresponds with the coil L on Fig. 3, L^1 on Fig. 4, and F on Fig. 5. The conductors 1 to 53 lead through a selective switch to the composing keyboard and the conductor S^{11} leads to the opposite pole of the source feeding such selective keyboard. It will be seen that with this arrangement the displaying coils may if desired be fed from one source, the replacement coils from a second source, and the lamps for illuminating from a third source, and such three sources of electricity may be of such voltage as is most suitable for the service it has to perform, for example, it is desirable that the keyboard which controls the excitation of the coils L^5 shall work upon a low voltage so as to avoid sparking and consequent burning at its many contacts, and as previously stated the duty that this coil performs being such as to require very little energy it may be of small dimensions, and for economy in production of low electrical resistance so that in actual practice I prefer to feed this circuit with current of a low voltage. The clearing coils H^7 have to perform heavier duty than the coil L^5 and particularly in large elements it is desirable and economical therefore to construct these of higher resistance requiring a higher voltage for their excitation, and with the lighting circuit it is often desirable to utilize lamps of high candle power, and constructed to consume electricity at the pressure usually supplied from the mains of the electric supply companies.

The member X carrying the contact Z^7 represents mechanism operating the visual members of the elements so that when they are cleared they cause the switch Z^8 to open thus interrupting the lighting circuit. The catch or lock W represents the catches K^1 on Fig. 3, K^2 on Fig. 4 and E^1 in Fig. 5, which serves to retain the element from displaying, the spring Y being equivalent to the springs I^3 on Fig. 3, H^4 on Fig. 4 and K on Fig. 5.

Fig. 8 represents a screen or panel *a* with apertures *b* arranged so as to form a complete monogram in accordance with my invention, each of the numbered apertures being constructed to accommodate an element. The monogrammic design shown comprises all the letters of the alphabet and numerals 0 to 9 and other conventional symbols and upon the centers depicted are placed, affixed or inserted elements of the type that I have just described.

Although I have shown in Fig. 8 two elements in the positions Nos. 34 and 46 these may be dispensed with if the vertical of the numeral 1 and the letters I, T, Y, are formed in a less conventional manner as by utilizing the elements Nos. 31 and 37 in place of element 34 and the elements 43 and 49 in place of elements 46. These characters are then formed of somewhat less conventional appearance owing to the bulbous appearance of the vertical components, but the advantage gained is that the whole of the elements throughout the monogram may be of any of the forms or types described herein. For many reasons it is desirable that all elements throughout a monogram shall be completely interchangeable. The letters formed upon my special monogram have a pleasing and symmetrical appearance by day and night, the contour of the monogram also permitting proper curves and angles to be formed thus possessing great advantages over assemblages of luminous or non-luminous elements which have heretofore been proposed, such as those in a symmetrical mass or with irregularly spaced centers.

The arrangement of elements shown is more particularly described by the following words. Two curved top and bottom lines are drawn in the positions occupied by the elements Nos. 2 to 6 and 16 to 20, a ring is formed by drawing two vertical sides connecting the curved top and bottom lines in the positions occupied by elements Nos. 8 to 14 and 22 to 28, this ring is divided by a central vertical line in the position occupied by elements 32 to 34, 44 to 46 and 53. Two diagonal lines are drawn through the center 53 extending toward the corners of the ring in the position occupied by elements 29 to 31 and 41 to 43 also 35 to 37 and 47 to 49; diagonal lines are extended from the four corners of the ring and upon this 1, 15, 21 are located in the positions shown by elements. Two triangular figures are drawn with the bases upon each of the vertical side lines and the apexes on a horizontal line passing through the center No. 53, such angular lines being in positions occupied by elements 38, 39 and 40, also 50, 51 and 52.

It has already been shown that each element comprises a visual member capable of display and non-display. By inspection of the monogram it will be seen that by operating the elements so as to display some and cause others not to display it is pos-

sible to form all the letters of the alphabet and numerals 0 to 9 and various conventional signs.

Fig. 9 illustrates the letters A, B, C, as displayed from the monogram shown in Fig. 8.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. In an advertisement and signal display device comprising a plurality of self-contained elements, the combination of a board having perforations or cells constructed to receive said elements therein, said perforations being of substantially the same size as each element and said elements each comprising movable portions for display and non-display respectively, and being individually removable from and replaceable as a whole in the perforations or cells of said board from one side thereof.

2. In an electrically operated advertisement and signal display device the combination of a board having perforations therein and electric contact members adjacent to said perforations, and a plurality of self-contained display elements comprising movable portions for display and non-display respectively, electrical devices for operating the same and contact members for automatically connecting conductors feeding said electrical devices, the said elements being severally removable from and replaceable in the perforations of said board, and when in place automatically causing contact with the required electric contact members of said board.

3. In an advertisement and signal display device the combination of a board having perforations therein, a plurality of self-contained display elements each comprising an electric lamp and movable portions for display and non-display respectively, said elements being severally removable from and replaceable in the perforations of said board, and electric contacts capable of coöperation on said elements and board respectively.

4. In an advertisement and signal display device the combination of a board having perforations therein and a plurality of self-contained elements each comprising a movable display member and internal operative mechanism for display and non-display respectively of said member, such mechanism being restricted to an area substantially not greater than the displayed member, and said elements being severally removable from and replaceable in the perforations of said board.

5. In an advertisement and signal display device the combination of a board having perforations therein, a plurality of self-contained display elements each comprising an electric lamp and controllable devices for initiating display and non-display respectively, said elements being severally removable from and replaceable in the perforations of said board, and coöperative electric contacts connectible with the said elements and board respectively.

6. In an advertisement and signal display device, the combination of a base having a perforation, a self-contained element adapted for insertion in and removal from said perforation, such element including an electric lamp, a switch for said lamp and two independent magnetic systems for operating the switch into different positions whereby said lamp is illuminated or extinguished due to momentary excitation of either of said systems.

7. In an apparatus for displaying advertisements, signaling and the like, the combination of a background of a uniform color, a detachable element having a movable plate arranged to be exposed and to display a color different than said back-ground, means for holding said plate in an unexposed position, means for exposing said plate, means for restoring said plate to the unexposed position, and means for illuminating said exposed plate at night.

8. In an apparatus for displaying advertisements, signaling and the like, the combination of a back-ground having a uniform color, an element having movable plates arranged to be exposed selectively, means securely holding said plates in an unexposed position, means for releasing and exposing the plates one at a time, means for retaining said plates in the exposed position, the released plate displaying a color different than the back-ground, a following released and exposed plate displaying a color different than the preceding exposed plate or plates and also different than the back-ground, a lamp for illuminating an exposed plate, means for closing an electric circuit through said lamp when a plate is exposed, a reflector on said lamp to reflect its light on said exposed plate, and means for opening said circuit and restoring said plate or plates to the unexposed position.

9. In an apparatus for displaying advertisements, signaling, and the like, the combination of a back-ground having a uniform color, a plurality of elements each having movable plates arranged to be exposed successively, the plates of one element independently of those of another element, means for securely holding the plates in an unexposed position, means for exposing the plates one at a time and retaining the unreleased plates, the released plate displaying a color different than the background, a following released and exposed plate displaying a color different than the preceding plate or plates of the same element and also different than the background, a lamp for illumi-

nating an exposed plate, means for closing an electric circuit through said lamp when a plate is exposed, a reflector on said lamp to reflect its light on said exposed plate, means for actuating a plurality of elements at one time thereby exposing a plate on each actuated element and effecting a predetermined display, means for opening said lamp circuit and for restoring said plate or plates to the unexposed position.

10. In an apparatus for displaying advertisements, signaling and the like, the combination of a background, a plurality of elements each having movable plates arranged to be exposed selectively, the plates of one element independently of those of another element, locking means securely holding the plates in an unexposed position, means for releasing and exposing the plates one at a time and retaining the unreleased plates, the released plate displaying a color different than the background, a following released and exposed plate displaying a color different than the preceding plate or plates of the same element and also different than the background.

11. An advertising display device comprising in combination a panel having orifices therein, and removable elements adapted to be inserted in said orifices, the orifices being located relatively to one another to form two curved top and bottom lines, two vertical side lines, a central vertical line, two diagonal lines crossing one another in the center of the vertical line, a horizontal center line bifurcated at each end and four offset corner spaces substantially as described.

In witness whereof I have signed this specification in the presence of two witnesses.

JAMES PRIESTNALL NAYLOR.

Witnesses:
S. FORD,
C. P. LIDDON.

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Corrections in Letters Patent No. 1,191,023.

It is hereby certified that in Letters Patent No. 1,191,023, granted July 11, 1916, upon the application of James Priestnall Naylor, of Dulwich, London, England, for an improvement in "Apparatus for Displaying Advertisements, Signaling, and the like," errors appear in the printed specification requiring correction as follows: Page 3, line 99, for the reference-numeral "12" read I^3; same page, line 100, for the word and reference-letter "coil H" read *magnet* H^1; page 4, line 25, for the reference-numeral "13" read I^3; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of September, A. D., 1916.

[SEAL.]

F. W. H. CLAY,
Acting Commissioner of Patents.

Cl. 40—52.

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Cl. 40—52.