

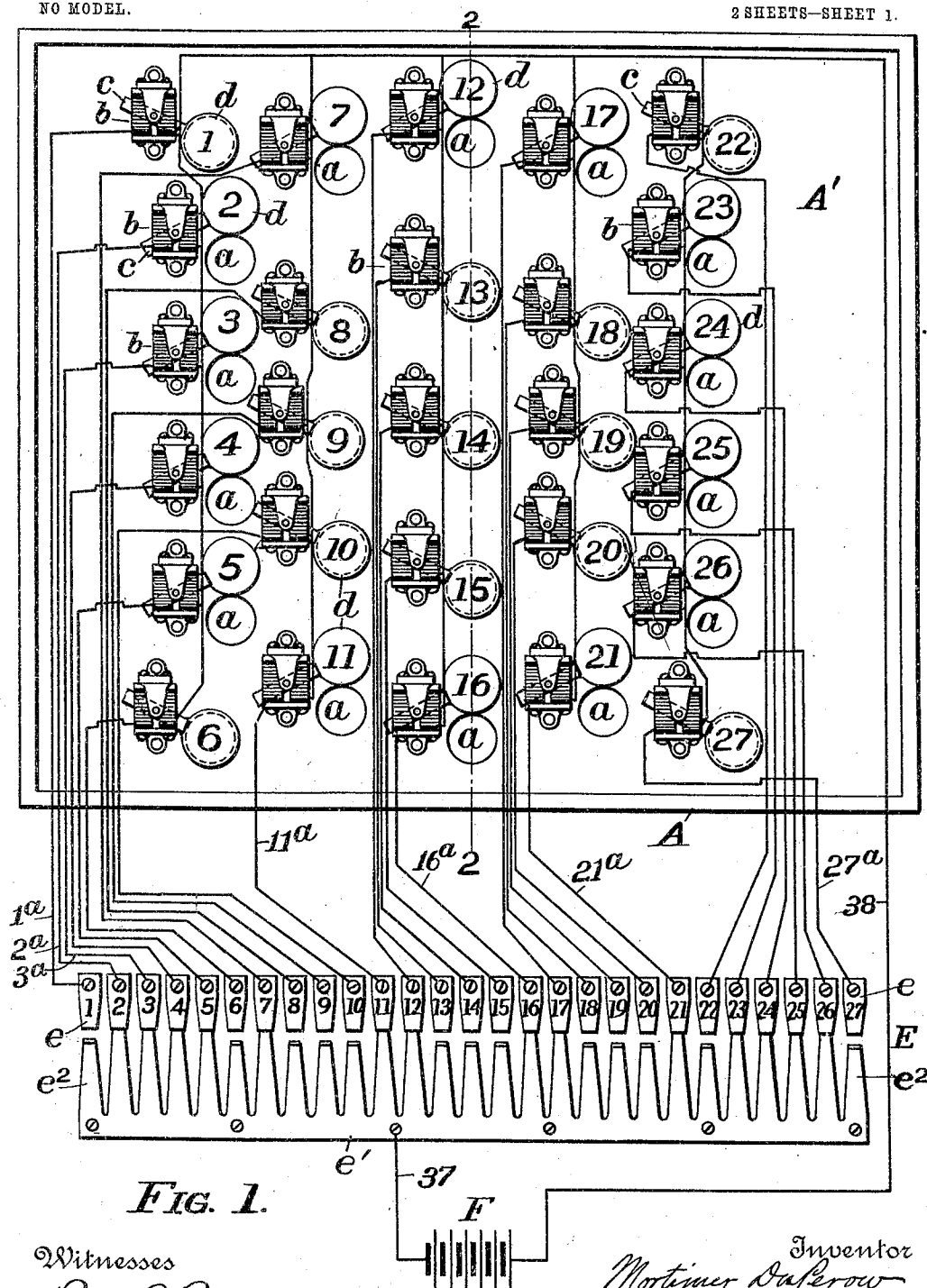
M. DU PEROW.

## ELECTRICALLY CONTROLLED MONOGRAM SIGN.

APPLICATION FILED MAY 9, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

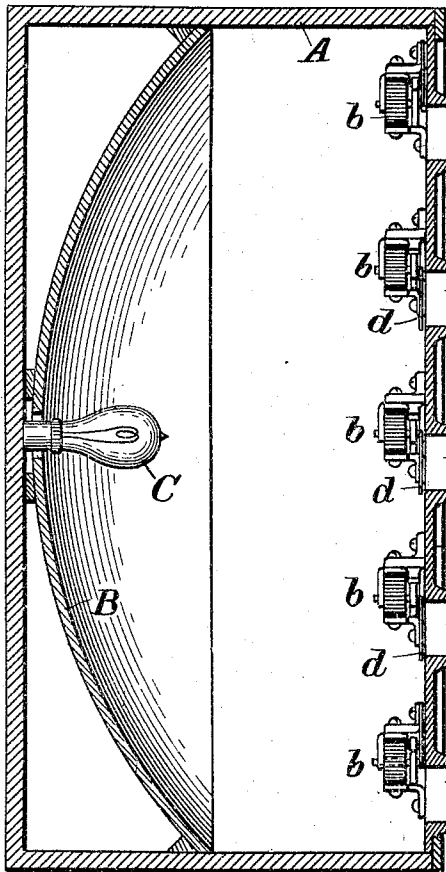


FIG. 2.

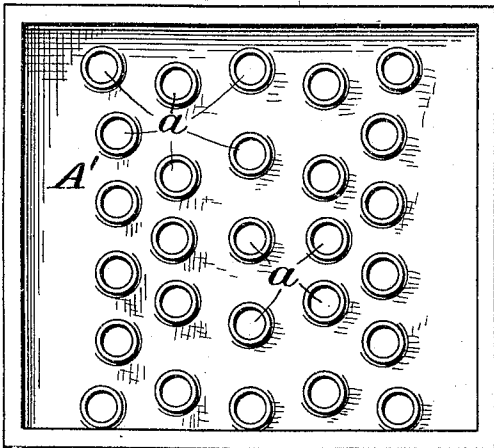


FIG. 7.

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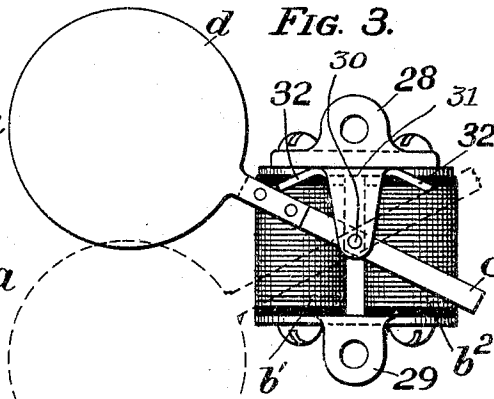


FIG. 3.

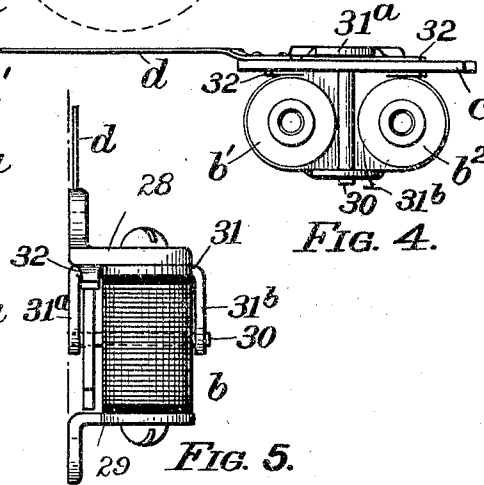


FIG. 4.

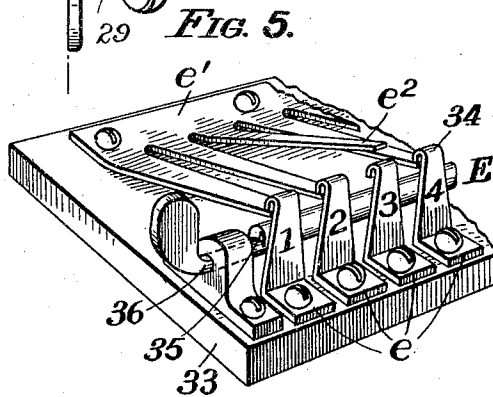


FIG. 5.

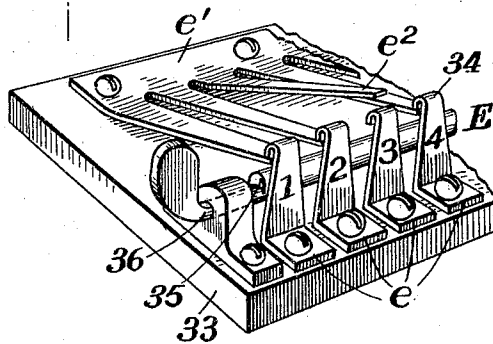


FIG. 6.

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# UNITED STATES PATENT OFFICE.

MORTIMER DU PEROW, OF WASHINGTON, DISTRICT OF COLUMBIA.

## ELECTRICALLY-CONTROLLED MONOGRAM-SIGN.

SPECIFICATION forming part of Letters Patent No. 773,931, dated November 1, 1904.

Application filed May 9, 1904. Serial No. 207,166. (No model.)

*To all whom it may concern:*

Be it known that I, MORTIMER DU PEROW, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Electrically-Controlled Monogram-Signs, of which the following is a specification.

The purpose of my invention is to provide a monogram-letter advertising device which may be readily controlled at a switchboard located at any convenient point and which may be inexpensively operated both as to the expenditure of electric energy for changing the letters and as to the illuminating power required to display the letters.

In carrying out my invention I provide for each monogram-letter a suitable casing having an opaque front plate provided with openings therethrough properly arranged, so that by uncovering certain groups of openings while the balance of the openings remain covered the letters of the alphabet and the digits may be displayed by light transmitted or reflected through such uncovered openings. I also provide a shutter for each opening, and in order to operate these shutters conveniently and economically each shutter is controlled by an electromagnetic device requiring a very small quantity of current to operate it, and these devices are arranged in separate circuits, so that they may be independently energized and deenergized to cause the movements of the shutters. Within the casing I arrange one or more lights of any suitable kind and a reflector to reflect the light through the openings.

By means of my improvements a large saving is effected in the operation of the monogram as compared with similar devices in which it is customary to provide expensive mechanical and electrical devices for supplying power and changing the characters displayed by the monogram.

In the accompanying drawings, which illustrate my invention, Figure 1 is a rear view of the front plate of the casing with the controlling-magnets and shutters connected thereto, the electric circuits and switching device being shown diagrammatically. Fig. 2 is a sectional view through the casing on the line 2-2 of Fig. 1. Fig. 3 is a front view, on an enlarged scale, of

one of the controlling-magnets and its shutter. Fig. 4 is a view of the magnet and shutter looking from the bottom of Fig. 3, the lower supporting-bracket for the magnet being removed. Fig. 5 is a side view of a magnet and shutter. Fig. 6 is a perspective view of a portion of the circuit closing and interrupting device, and Fig. 7 is a front view of the casing on a small scale.

Referring to the drawings, A indicates a box or casing inclosed on all sides and having within it a reflector B, arranged in the rear portion of the casing, and one or more lamps C, arranged in front of this reflector. A centrally-arranged incandescent electric lamp is shown in the drawings; but any suitable number and kind of lamps may be employed, according to the dimensions of the casing. The front plate A' of the casing has a number of openings *a* extending through it, and a corresponding number of small electromagnets *b* are arranged adjacent to these openings upon the inner side of the front plate A'. Each electromagnet is adapted when energized to cause the movement of an adjacent polarized armature *c*, and each armature carries at one end a thin disk or shutter *d*, of aluminium or other lightweight material. As shown in the drawings, there are twenty-seven openings in the front plate and a corresponding number of electromagnetic devices and shutters, the latter being numbered in Fig. 1 from 1 to 27, inclusive. Each magnet, as shown in the drawings, Figs. 3 and 4, consists of two parallel wire coils *b'* and *b''*, wound upon iron cores, and the magnets are secured to the front plate by brackets 28 and 29, attached to these cores. Each polarized armature *c* is pivotally arranged between the magnet and the front plate upon a shaft or spindle 30, passing centrally through the armature and secured thereto. This spindle extends horizontally between the coils of the magnet and midway between its ends and is journaled in arms 31<sup>a</sup> and 31<sup>b</sup> of a bracket 31, which is clamped between the bracket 28 and the cores of the magnet, and thus held securely in place. The armature may thus oscillate freely about its axis, so that its polar extremities may move from end to end of the magnet. Stops 32, projecting laterally from the bracket 31, limit

the movement of the armature in both directions, as will be evident from an inspection of Fig. 3. The thin light-weight disk *d* over-  
 balances one end of the armature sufficiently  
 5 to cause the shutter to drop into and rest normally in its lowermost position (shown in dotted lines in Fig. 3) when the magnetic controlling device is not energized. In this position the shutter extends across the adjacent  
 10 opening *a* in the front plate and prevents the rays of light from passing through the opening. As soon, however, as the controlling device is energized the armature raises the shutter into the position shown in full lines  
 15 in Fig. 3, and thus uncovers the opening and permits the light to shine through the opening. The electromagnetic controlling device may be simply a pair of coils without iron cores and a polarized armature coöperating  
 20 therewith.

The coils of the controlling devices *b* for operating the shutters (numbered from 1 to 27, inclusive) are connected by separate conductors 1<sup>a</sup> 2<sup>a</sup> 3<sup>a</sup>, &c., to a correspondingly-numbered series of insulated contact-pieces *e* upon  
 25 a circuit making and interrupting device E, Figs. 1 and 6. These contact-pieces are mounted upon a suitable base 33, and each contact-piece has an upwardly-projecting spring-arm  
 30 34, having a downwardly turned or hooked end, as shown. A metal comb *e'* is secured to the base 33 and has a series of spring-fingers *e''*, arranged, respectively, opposite the numbered contact-pieces *e*. The arrangement is  
 35 such that the ends of the spring-fingers normally extend above and out of contact with the contact-pieces *e*; but when depressed these fingers press the arms 34 of the contact-pieces backward and then become locked by the  
 40 hooked ends of said contact-pieces in engagement therewith. A bail 35, eccentrically mounted on a shaft 36, suitably journaled in bearings upon the base 33, is adapted when moved against the arms 34 to press the entire  
 45 series of arms backward simultaneously, and thus release the spring-fingers from mechanical and electrical engagement with the arms of the contact-pieces. The comb or part *e'* of the circuit making and interrupting device E  
 50 is connected to one pole of a battery or other suitable source of electrical energy by a conductor 37. A return-conductor 38, common to all the controlling devices, is connected to the opposite side of the battery. The arrangement of the circuits and the winding of  
 55 the coils are such that the polarities of all the electromagnetic controlling devices are alike, and the poles of all the armatures are similarly arranged with reference to said devices.  
 60 When any one of the spring-fingers *e''* is moved into engagement with the opposing numbered contact *e*, the circuit will be closed through the electromagnetic controlling device operating the correspondingly-numbered  
 65 shutter, and this shutter will be moved up-

ward, thus uncovering the adjacent opening in the front plate. The shutter will remain in its upper position until the circuit is interrupted by the disengagement of the spring-finger and contact-piece, when the shutter will  
 70 drop and cover the opening. With this arrangement it will be evident that each shutter may be operated independently, and by uncovering different groups of openings various illuminated characters, such as letters and  
 75 numbers, may be displayed. In Fig. 1 of the drawings, for instance, the contact-pieces (numbered 2, 3, 4, 5, 7, 11, 12, 16, 17, 21, 23, 24, 25, and 26) are connected by the spring-fingers  
 80 to the battery, and the correspondingly-numbered shutters are moved into position to disengage the adjacent openings, while all the other shutters whose controlling devices are not connected to the battery remain in the closed  
 85 position. The consequence is that the letter "O" will be displayed through the uncovered openings. This letter will be displayed until the circuits are interrupted. When it is desired to display another letter or figure, the  
 90 bail 35 is moved to disengage the spring-fingers, when all of the open shutters will drop to their closed positions, and the operator, knowing the combination of circuits to produce any given figure or letter, will then press  
 95 down the proper spring fingers or keys for the letter or figure desired and the correspondingly-numbered shutters will be moved to the open positions.

Where it is desired to display a number of sentences for a short time each in rotation, a  
 100 suitable automatically-operated commutator or switching device may be substituted for the circuit-controlling device shown in the drawings and arranged to control the circuits in a series of similar monogram devices; but  
 105 where frequent changes in the sign are not required the simple circuit-controlling device shown in the drawings is suitable and desirable on account of its inexpensive construction.  
 110

Instead of overbalancing the armatures, so that the shutters will return to their normal positions by the force of gravity, the armatures may be returned by light springs; but the arrangement shown is more desirable and  
 115 satisfactory in operation.

Only a very small quantity of current is required to operate each electromagnetic controlling device, and the entire group of devices in a monogram may be operated with  
 120 two or three dry-battery cells. For this reason the monogram is especially desirable as a portable advertising device and also for the reason that only a small amount of illuminating power is required and any suitable illuminant may be employed.  
 125

It is desirable to arrange the magnetic controlling devices and circuits so that the shutters will normally close the openings when the magnetic controlling devices are deenergized.  
 130

gized, especially when the circuits are controlled automatically, so as to display different letters at short intervals, as this shuts off all the light after each letter has been exhibited. This arrangement may, however, be reversed by simply turning the casing upside down and reversing the poles of the battery. When this is done, it will be evident that when the circuits are opened the openings in the face-plate will all be uncovered. Then all of the openings which are not required to make any given letter may be closed by closing the circuits of the magnetic controlling devices adjacent to such openings, thus causing the shutters to move over these openings, while the remaining openings in the plate stay uncovered and display the desired letter.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a monogram-sign, a plate having a number of openings therein suitably arranged to form a variety of characters, a shutter for each opening adapted to cover and uncover the same, electromagnetic controlling devices adapted to move said shutters independently, and means for electrically energizing and deenergizing said controlling devices.

2. In a monogram-sign, a plate having a number of openings therein suitably arranged to form a variety of characters, a corresponding series of shutters normally closing said openings, a separate electromagnetic controlling device for each shutter adapted, when energized, to move the shutter into open position, and means for electrically energizing and deenergizing said controlling devices.

3. In a monogram-sign, a plate having a number of openings therein suitably arranged to form a variety of characters, a corresponding series of shutters normally closing said openings, a separate electromagnetic controlling device for each shutter adapted, when energized, to move the shutter into open position, a separate conductor leading from each controlling device to a source of electric energy, and a circuit-closing device in each of said circuits.

4. In a monogram-sign, a plate having a number of openings therein suitably arranged to form a variety of characters, a separate electromagnetic controlling device adjacent to each opening, each device comprising a coil and a polarized armature in operative re-

lation thereto, a shutter movable with each armature and adapted to cover and uncover the adjacent opening, and suitable electric circuits and circuit-controlling devices for independently energizing said coils.

5. In a monogram-sign, a casing having a front plate provided with a number of openings suitably arranged to form a variety of characters, a lamp within the casing, a shutter for each opening, electromagnetic controlling devices adapted to operate said shutters independently, and means for electrically energizing and deenergizing said controlling devices.

6. In a monogram-sign, a casing having a front plate provided with a number of openings suitably arranged to form a variety of characters, a reflector within the casing, a lamp arranged between said reflector and front plate, a shutter for each opening, electromagnetic controlling devices adapted to operate said shutters independently, and means for electrically energizing and deenergizing said controlling devices.

7. In a monogram-sign, a casing having a front plate provided with a number of openings suitably arranged to form a variety of characters, a lamp within the casing, an electromagnetic device secured to the front plate adjacent to each opening, each device comprising a coil and a polarized armature pivoted adjacent thereto and adapted to oscillate in a vertical plane, a shutter connected to each armature and adapted to cover and uncover the adjacent opening, and suitable circuits and circuit-controlling devices for independently energizing said coils.

8. In a monogram-sign, a plate having a number of openings therein suitably arranged to form a variety of characters, a shutter arranged adjacent to each opening and movable to cover and uncover the opening, a separate electromagnetic controlling device supported adjacent to each opening and adapted, when energized, to move the adjacent shutter, and means for electrically energizing and deenergizing said controlling device.

In testimony whereof I affix my signature in presence of two witnesses.

MORTIMER DU PEROW.

Witnesses:

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BERNARD W. BONTZ.