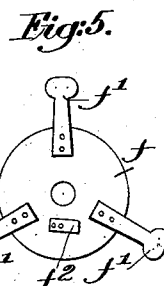
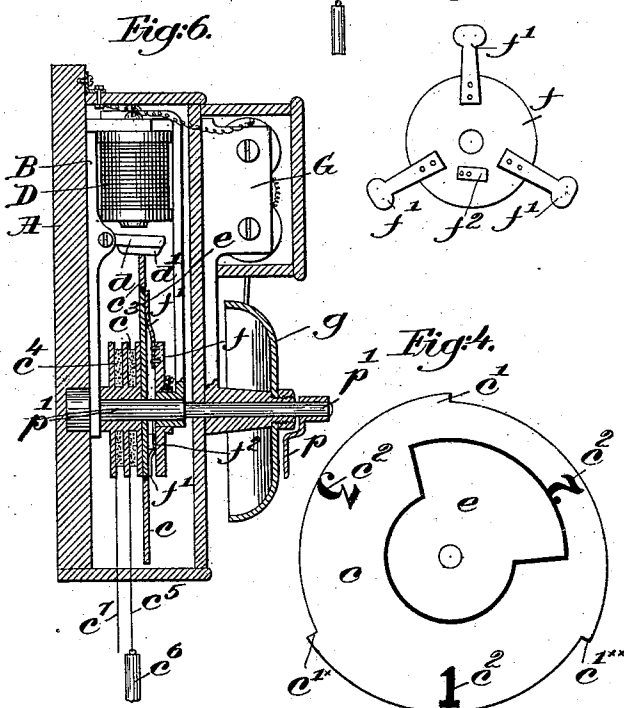
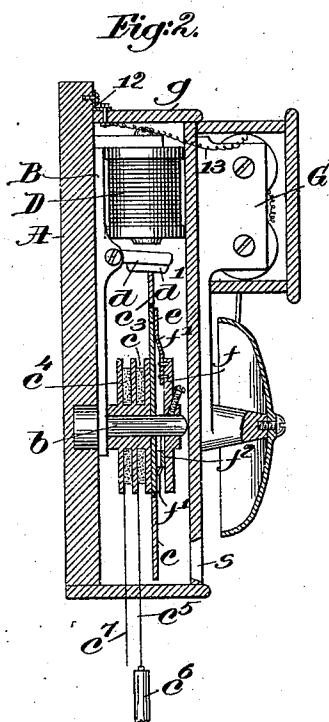
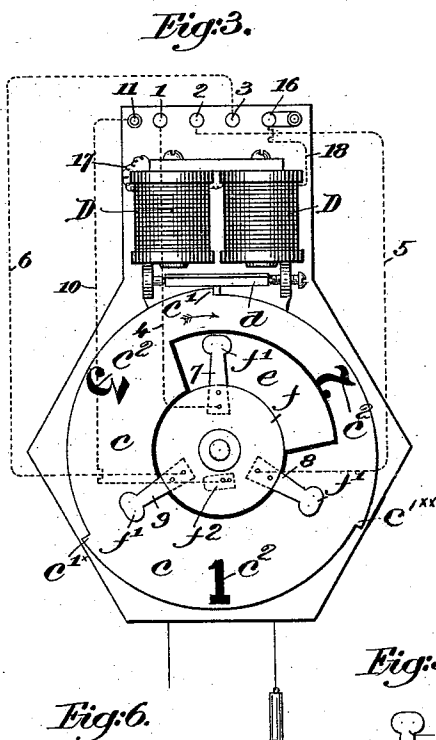
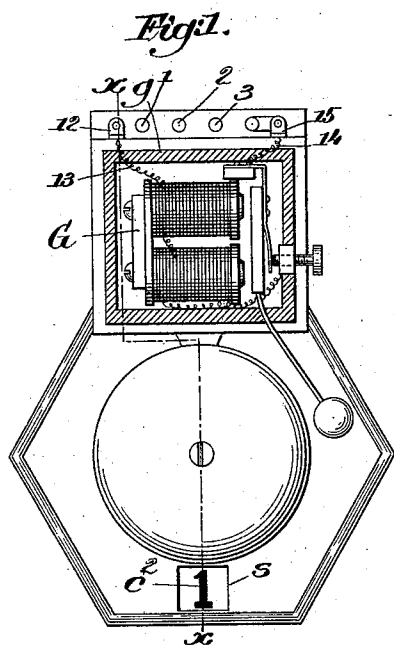


(No Model.)

C. C. BRAMWELL.  
VISUAL INDICATING DEVICE.

No. 544,024.

Patented Aug. 6, 1895.



Witnesses.

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# UNITED STATES PATENT OFFICE.

CLARENCE C. BRAMWELL, OF HYDE PARK, MASSACHUSETTS.

## VISUAL INDICATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 544,024, dated August 6, 1895.

Application filed October 18, 1894. Serial No. 526,275. (No model.)

*To all whom it may concern:*

Be it known that I, CLARENCE C. BRAMWELL, of Hyde Park, county of Norfolk, State of Massachusetts, have invented an Improvement in Visual Indicating Devices, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention has for its object to simplify and cheapen the construction of electro-mechanical visual indicating devices or annunciators.

In the accompanying drawings, illustrating the preferred embodiment of my invention, 15 Figure 1 is a face view; Fig. 2, a vertical section of the same, taken on the dotted line  $xx$ ; Fig. 3, a view similar to Fig. 1, with the cover and audible alarm removed; Fig. 4, a detail showing the conducting and stop disk with its attached circuit-changing segment removed; Fig. 5, a detail showing the preferred 20 manner of mounting the several brushes or fixed contacts, and Fig. 6 a modification to be described.

In the particular device shown in the drawings, A is the base, preferably of wood and of suitable shape and construction to sustain the working parts, and upon this base is 30 mounted the preferably metallic frame B, from the bottom of which projects the stud  $b$ , upon which is loosely journaled the conducting member  $c$ , shown as and preferably in the form of a metallic disk, provided at its periphery with a series of ratchet teeth or stops 35  $c'$ ,  $c'^x$ ,  $c'^{xx}$ , corresponding in number to the number of visual indicating characters  $c^2$ , shown as arranged in a circle and preferably upon the member  $c$ , as shown in Fig. 4.

40 At the back of and fast to the conducting member or disk  $c$  I have shown two pulleys  $c^3$   $c^4$ , about the former of which is wound one end of a cord  $c^5$ , carrying the actuating-weight  $c^6$ , and about the other of which is wound or 45 coiled the winding rope or chain  $c^7$ .

The weight  $c^6$  furnishes means for rotating the contact member  $c$  and the visual characters automatically in a manner to be described, while the cord or chain  $c^7$  furnishes 50 means for rotating the pulley  $c^3$  to wind the cord or chain  $c^5$ , and thereby raise its weight  $c^6$ . The rotative movements of the conducting

member  $c$  are controlled in the present instance by the armature  $d$  of the electromagnet D, shown as mounted in suitable manner 55 at the top of the frame B, said armature having a lug  $d'$ , adapted to drop in front of any one of the several stops  $c'$  upon the conducting member referred to.

When the magnet is energized the armature 60 is attracted and thereby raised from engagement with one of the stops on the periphery of the conducting member, permitting the latter to be rotated by its weight  $c^6$  until again stopped by the armature  $d$  again dropping 65 from its magnet in front of one of the stops.

In the present embodiment of my invention I have provided at the face of the conducting member  $c$ , and preferably secured to and insulated from the same, a circuit-changing 70 member  $e$ , shown in the form of a segment. (See Fig. 4.)

Fast upon the outer end of the stud  $b$  is an insulation-disk  $f$ , to which are attached as many radiating contact pens or brushes  $f'$  as 75 there are stops  $c'$  at the periphery of the conducting member  $c$ . The insulation-disk  $f$  also has secured to it a brush  $f^2$ , which bears at all times upon the inner or central portion of the circuit-changing segment or member  $e$ , as 80 shown in dotted lines, Fig. 3.

The mechanism so far described is preferably inclosed within a suitable inclosing-cover  $g$ , upon the outside of which is secured an audible alarm, shown as and preferably in the 85 form of an electric vibrating bell G (see Figs. 1 and 2) of usual construction.

The arrangement of circuits is as follows, viz: Referring to Figs. 1 and 3, 1, 2, and 3 are binding-posts, to which are connected wires 90 leading from three push-buttons or other circuit-closing devices (not shown) located at the different rooms in a hotel or at other desired points. The binding-posts 1, 2, and 3 are connected respectively by wires 4, 5, and 6 with 95 the several brushes  $f'$ , and numbered in Fig. 3 as 7, 8, and 9. The fixed contact  $f^2$  is connected by a wire 10 with a contact 11 on the base, with which co-operates a clip 12 on the cover  $g$ , connected by a wire 13 (see Fig. 2) 100 with the bell G of usual construction, said bell being again connected by a wire 14 (see Fig. 1) with a second clip 15 on the said cover  $g$ , which latter co-operates with a contact 16 on

the base. One pole of the battery or generator is connected with the contact 16, and the other pole of the battery is connected, as usual, with the several push-buttons located at the distant points.

The operation of my device is as follows, viz: With the parts in the positions shown in Fig. 3, if the push-button connected with the binding-post 3 be operated to close the circuit from the battery through the said binding-post the current will travel from the said binding-post 3 through wire 6, fixed brush 9, conducting member *c*, post *b*, frame B, thence by suitable connection 17 (see Fig. 3) to and through the electromagnets D, thence by connections 18 to the binding-post 16 and battery. Upon passage of the current, as indicated, the magnets D are energized and the armature *d* is attracted to release the conducting-disk *c* and permit the latter, under the action of the weight *c*<sup>6</sup>, to rotate in the direction of the arrow, Fig. 3, until the circuit-breaking member or segment *e* reaches and passes under the fixed brush 9 connected to the binding-post 3, which thereby breaks the circuit referred to, de-energizes the magnets D, the armature of which drops and catches the next stop, herein numbered *c*'<sup>xx</sup>, on the periphery of the conducting member *c* to stop rotation of the latter, and expose the visual character 3 opposite it and corresponding to the push-button operated. When the circuit-changing member *e* passes beneath the brush 9 and breaks the circuit referred to, it at the same time automatically closes the bell-circuit to ring the audible alarm, which circuit may be traced as follows, viz: From the binding-post 3, wire 6, brush 9, circuit-changing member *e*, fixed brush *f*<sup>2</sup>, wire 10, binding-post 11, clip 12, wire 13, bell G, wire 14, clip 15, binding-post 16, thence to the battery, the bell, if a vibrator, being sounded continuously until the circuit is broken at the push-button or distant point. Should the same push-button be operated several times in succession, the armature of the magnet D will remain inactive, inasmuch as the circuit of the magnet D is broken at the brush 9, but the bell will, however, be sounded each time. Should the circuit, through the binding-post 2, be closed, the circuit may be traced as follows, viz: Through the wire 5, brush 8, conducting member *c*, post *b*, magnet D, binding-post 16, to the battery, the armature *d* being attracted to permit rotation of the said conducting member until the circuit is broken by the circuit-changing member *e* passing beneath the said brush 8, which breaks the circuit of the magnet D, stops the conducting member, and drops its armature to catch the stop *c*'<sup>x</sup> to expose the character 2 opposite, and the alarm being sounded through the circuit-changing member and brush 8 as before.

The same operation over different circuits takes place when the push-button of binding-post 1 is operated to expose character 1.

In the embodiment of my invention herein

shown, the conducting member *c* fulfills four distinct functions, viz: It acts as a commutator to make and break the circuit of the magnet D; it acts as a carrier for the visual indicating characters *c*<sup>2</sup>; it acts as a stop device, through its stops *c*', to control the movements of the conducting member, and it also operates, in connection with the circuit-changing member *e*, to control the bell-circuit.

This invention, therefore, presents great simplicity and cheapness of construction, and is capable of being used for a long period of time without requiring any outlay for repairs, &c.

My invention is not, however, restricted to the particular construction and arrangement of device shown, for it is evident the same may be varied without departing from the spirit and scope of the invention.

The member *c* may be made of sufficient size to carry any number of characters *c*<sup>2</sup> or any number of stops *c*' to vary the capacity of the device; and while I have herein shown a simple arrangement of mechanism controlled by the weight *c*<sup>6</sup> to automatically rotate the visual characters at the proper time, yet a spring may be substituted for the weight if desired, or any other suitable means employed to rotate the characters to bring the same into exposed position.

In Figs. 1 and 5 the characters are rotated and exposed singly at the sight-opening *s* in the cover *g*. The characters may however be fixed and a pointer be rotated by the device, as illustrated in Fig. 6, wherein the characters are displayed in a circle upon the surface of the gong *g*, the pointer *p* being fast on the end of a rotatable arbor *p*', upon which are mounted the conducting member *c* and the pulleys *c*<sup>4</sup>, the disk *f*, carrying the contact-pins, being held by an arm of the frame, as shown.

The operation is precisely the same in principle, except that a pointer *p* is connected to the conducting member and rotated thereby into position in front of one or the other of the indicating characters.

A spring attached to and to rotate the conducting member is, of course, a well-known equivalent for the weight and its cord, the spring or cord in either instance being fixedly connected with the conducting member or its carrying-shaft, so that it will rotate the conducting member in one direction and be wound or returned to its original condition by opposite rotation of the conducting member, as distinguished from devices wherein the spring or weight is connected with the device to be rotated through the medium of pawls and ratchets, in order that the spring or weight may be rewound by opposite rotation of the device moved.

Having described one embodiment of my invention, and without limiting myself as to details, what I claim, and desire to secure by Letters Patent, is—

1. In a visual indicating device of the class

described, a rotatable conducting member having a notched periphery, and an insulated segment upon the face of the same, combined with one or more insulated contacts acting upon the faces of said member and segment; an electro-magnet and its armature co-operating with the said notched periphery, to operate, substantially as described.

2. In a visual indicating apparatus, a base, a stud thereon; a rotatable disk-like conducting member having a notched periphery journaled upon the said stud; a weight to rotate the said disk in one direction, and an electro-magnet and its armature co-operating with the notches in the said conducting member to control rotation of the latter; a segmental circuit changing member arranged upon the face of said conducting member; a series of fixed contacts bearing upon the faces of the said conducting member and circuit changing member, and passing from one to the other during rotation of the said members; a fixed contact  $f^2$  bearing continuously upon the said circuit changing member; and an audible alarm, and magnet controlling the same electrically connected with the said contact  $f^2$  and operated by and during rotation of the said members, substantially as described.

3. In a visual indicating apparatus, a base, a stud projecting therefrom; a rotatable conducting member loosely mounted upon the said stud and having a notched periphery; a segmental circuit changing member arranged

upon the face of said conducting member; a series of fixed contacts acting upon the face of said members, and a carrier therefor mounted upon the end of said stud; an electro-magnet, and its armature co-operating with the notches in the periphery of said conducting member, and an audible alarm arranged, to operate, substantially as described.

4. In a visual indicating device of the class described, a rotatable conducting member provided at its periphery with a series of ratchet toothed stops, an insulated segment upon the face of said member, one or more insulated contacts acting upon the faces of said member and segment, an electro-magnet and its armature co-operating with said ratchet toothed stops to admit rotation of the conducting member freely in one direction, but to restrain rotation in an opposite direction except when attracted by its magnet, a weight and its cord for rotating the said conducting member in the direction normally restrained by said armature, opposite or free rotation of the said conducting member winding the said cord, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CLARENCE C. BRAMWELL.

Witnesses:

FREDERICK L. EMERY,  
M. J. SHERIDAN.