

No. 841,307.

PATENTED JAN. 15, 1907.

C. C. BLAKE.  
ELECTRIC ANNUNCIATOR.  
APPLICATION FILED NOV. 29, 1905.

Fig. 1.

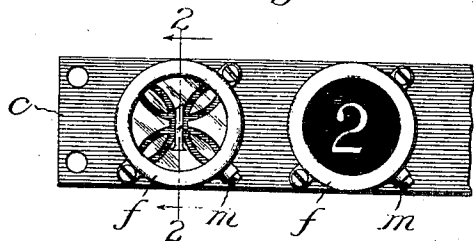


Fig. 2.

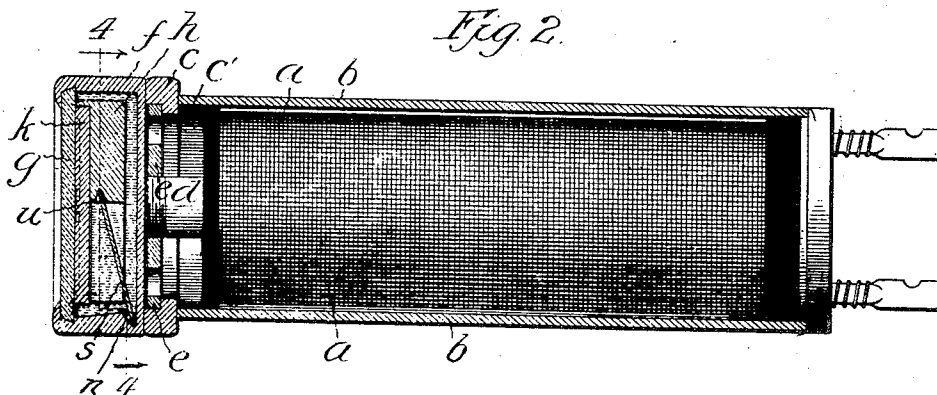


Fig. 3.

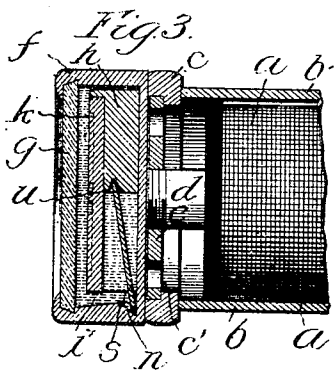


Fig. 4.

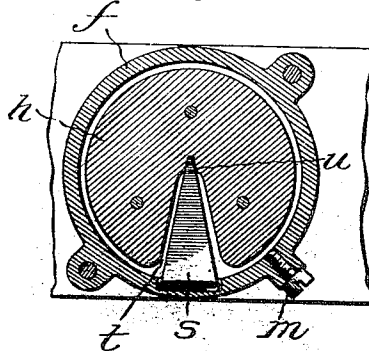
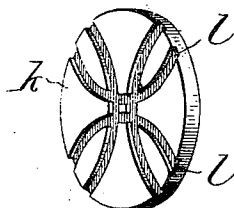


Fig. 5.



Witnesses:  
Geo. C. Donovan.  
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Inventor:  
Charles Chandler Blake  
By Barton & Shaver  
Attys.

# UNITED STATES PATENT OFFICE.

CHARLES C. BLAKE, OF BROOKLINE, MASSACHUSETTS, ASSIGNOR TO  
WESTERN ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPO-  
RATION OF ILLINOIS.

## ELECTRIC ANNUNCIATOR.

No. 841,307.

Specification of Letters Patent.

Patented Jan. 15, 1907.

Application filed November 29, 1905. Serial No. 289,555.

*To all whom it may concern:*

Be it known that I, CHARLES C. BLAKE, a citizen of the United States, residing at Brookline, in the county of Norfolk and State of Massachusetts, have invented a certain new and useful Improvement in Electric Annunciators, of which the following is a full, clear, concise, and exact description.

My invention relates to electric annunciators in which a signal target is held in a receptacle containing an opaque or colored liquid and is adapted to be moved toward and from a transparent window of the receptacle, the face of the target being visible only when in proximity to the window.

The object of my invention is to provide a durable construction in which the operation of the signal is rapid and certain and in which there is no possibility of the liquid escaping into the coils of the electromagnet.

In a well-known form of annunciator, of which my present invention constitutes an improvement, the opaque liquid and the target are held in a chamber forming an extension of the shell inclosing the annunciator-magnet. With this construction there may be a liability of the liquid to escape into the coil of the electromagnet and injure the same. Furthermore, when the face of the target is in contact with the glass window there is a tendency of the two surfaces to adhere, so that the armature does not readily and rapidly respond to the attraction of its magnet. By my invention these objections are entirely overcome.

In my invention the chamber or receptacle containing the fluid is separate from the inclosing shell of the annunciator-magnet. The magnet is secured on the rear of a mounting-strip and the receptacle containing the fluid is separately mounted on the front thereof. The face of the target has a grooved surface, which allows a free circulation of the liquid and overcomes the tendency of the target to adhere to the window.

I will describe my invention more particularly by reference to the accompanying drawings, in which—

Figure 1 is a front elevation of two of my annunciators secured to a mounting-strip, one of the annunciators being shown as displaying its signal. Fig. 2 is a section on the line 2 2 of Fig. 1, showing the signal in prox-

imity to the window. Fig. 3 is a similar section with parts broken away, showing the armature attracted by the electromagnet. Fig. 4 is a section on the line 4 4 of Fig. 2. Fig. 5 is a perspective view of the signal-target.

The same letters of reference are used to designate the same parts wherever they are shown.

The electromagnet *a* is inclosed in a shell *b* and is secured on the rail of a mounting-strip *c* about an opening *c'* therein, preferably by screwing the core *d* in a threaded perforation in a brass disk *e*, secured in an opening in said mounting-strip. Separately mounted in any suitable manner on the face of the strip *c* is a hermetically-sealed receptacle *f*, having a transparent window or face *g* of glass. Inclosed within this receptacle is the armature *h* of the magnet and a colored liquid *i*. The liquid may be introduced into the receptacle through a passage closed by the screw *m*. The armature is secured to a white glass target *k*, which is visible only when in contact with the glass window *g*.

The armature is cut away to form a recess *t* for a support *s*. A hole *u*, extending from the upper end of the recess, receives the upper end of the tilting support *s*, the lower end of which is pivotally held in a groove *n* in the floor of the receptacle *f*.

The armature *h* is so supported that the signal target *k* is in proximity to the window and is visible therethrough when the armature is not attracted by the magnet. When the electromagnet is energized, the target *k* is drawn inward and concealed by the fluid.

Any other suitable means of normally holding the face of the armature against the window may be used, and the particular means here shown and described is not an essential feature of my invention.

Grooves *l*, extending across the surface of the target, facilitate the escape of the liquid from between the face of the target and the window when the armature is moving toward the window and also facilitate the rapid motion of the liquid in between the target and the window when the armature is attracted. The tendency of a film of the liquid to cause the face of the target to adhere to the glass window is thus overcome, and the operation of the signal is rapid and certain.

The receptacle *f* is of course composed of

some non-magnetic substance and is preferably metallic. Any suitable non-corrosive liquid may be used in the receptacle. I have found that commercial benzole, suitably colored, preferably by cutting asphalt in the benzole to give the desired depth of color, is thoroughly satisfactory and is particularly adapted to use with my annunciator.

What I claim is—

1. In an annunciator, the combination with a receptacle inclosing a signal-target and a colored liquid, and provided with a transparent window through which the target is visible when in contact therewith, an electromagnet and its inclosing shell, separate from said receptacle, and an armature connected with said signal-target to operate the same.

2. In an annunciator; the combination with an electromagnet and its inclosing shell, of a hermetically-sealed chamber separate from the shell of the magnet, an armature and a colored liquid inclosed in said chamber, a target-signal secured to the armature, and a transparent window in the chamber through which the target is visible when the magnet is deenergized.

3. In an annunciator, the combination with an electromagnet, of a plate upon the rear of which said magnet is mounted, a hermetically-sealed chamber separately mounted on the front of the plate, an armature and a colored liquid inclosed in said chamber, a target secured to the armature, and a transparent window in the chamber through which the target is visible when the magnet is deenergized.

4. In an annunciator, the combination with a signal-target having grooved channels across its face, of a receptacle inclosing said target and provided with a transparent window, a colored fluid in the receptacle, an electromagnet, and an armature connected with the target to operate the same.

5. In an annunciator, the combination with an electromagnet, of a plate upon the rear of which said magnet is mounted, a hermetically-sealed chamber separately

mounted on the front of the plate, a signal-target having grooved channels across its face inclosed in said chamber, an opaque liquid in the chamber, an armature secured to the target, and a window in the chamber toward and from which the armature is adapted to move the target.

6. In an annunciator, the combination with a hermetically-sealed receptacle having a transparent face, of a plate upon the face of which said receptacle is mounted, a fluid composed of colored benzole inclosed in said receptacle, a signal-target movable in the receptacle toward and from the face thereof, an electromagnet separately mounted upon the rear of said plate, and an armature adapted to operate the target.

7. In an annunciator, the combination with a hermetically-sealed receptacle, of a fluid composed of benzole colored with asphaltum inclosed therein, a signal-target mounted in said chamber, an electromagnet mounted independently of said receptacle, and an armature for said magnet connected to the target and adapted to operate the same to control the signal.

8. In an annunciator, the combination with a receptacle inclosing a signal-target and a liquid, and provided with a window through which the target is visible when in proximity thereto, an electromagnet and its inclosing shell, separate from said receptacle, and an armature connected with said signal-target to operate the same.

9. In an annunciator, the combination with a receptacle provided with a window, of a liquid in said receptacle, a signal-target in said liquid, means for preventing the adhesion of the target to the window, an electromagnet, and an armature connected with the target to operate the same.

In witness whereof I hereunto subscribe my name this 4th day of September, A. D. 1905.

CHARLES C. BLAKE.

Witnesses:

SAMUEL HEIMLICH,  
E. J. BURKE.