F. C. GRAHAM.

ELECTRIC ANNUNCIATOR AND SIGNALING SYSTEM.

APPLICATION FILED JUNE 14, 1911.

1,038,117.

Patented Sept. 10, 1912.

3 SHEETS—SHEET 1.

Fig. 1.

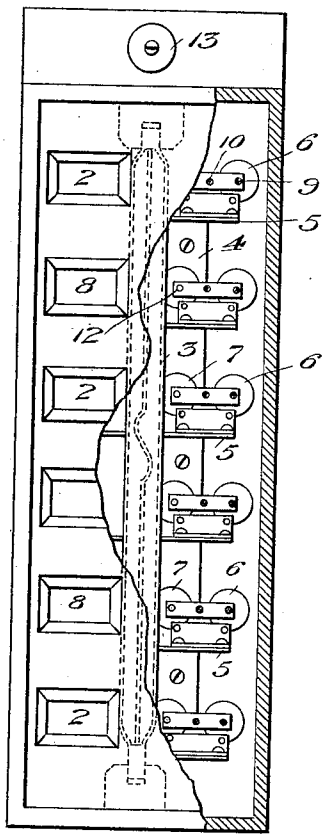


Fig. 2.

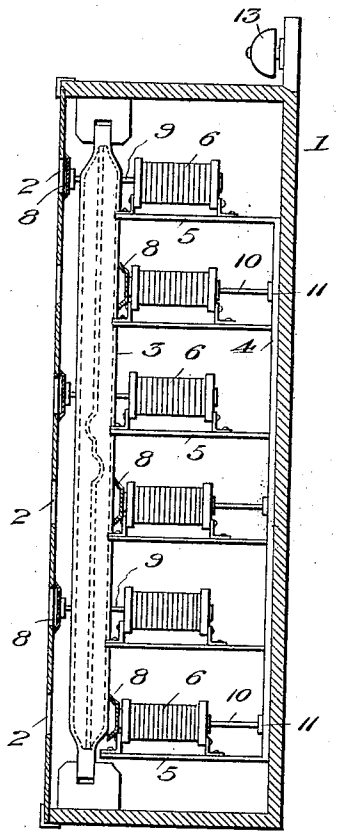
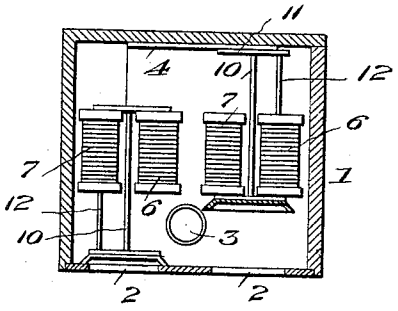


Fig. 3.



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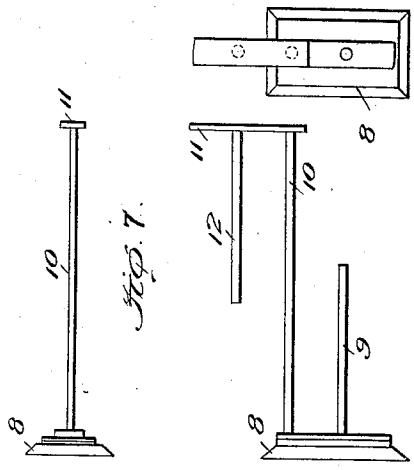

Fig. 7.

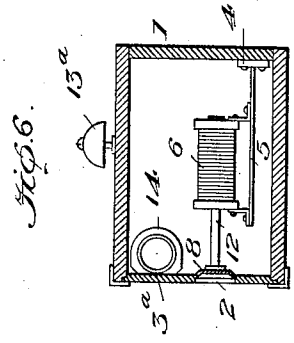

Fig. 6.

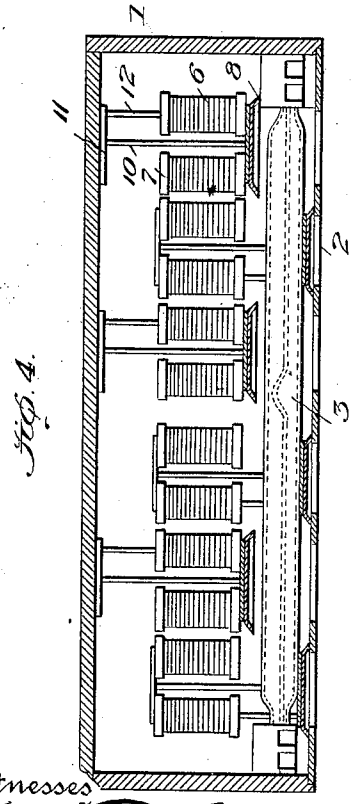

Fig. 4.

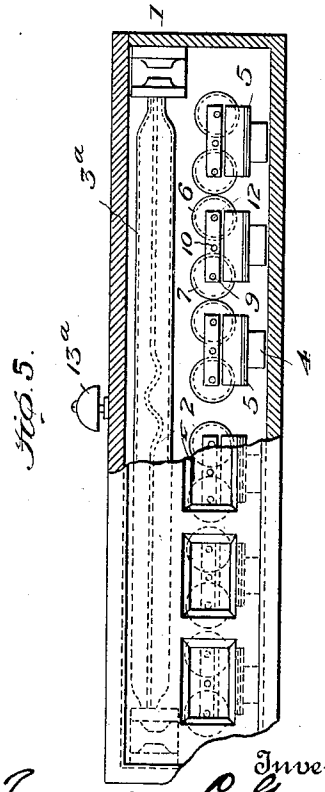

Fig. 5.

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3 SHEETS—SHEET 3.

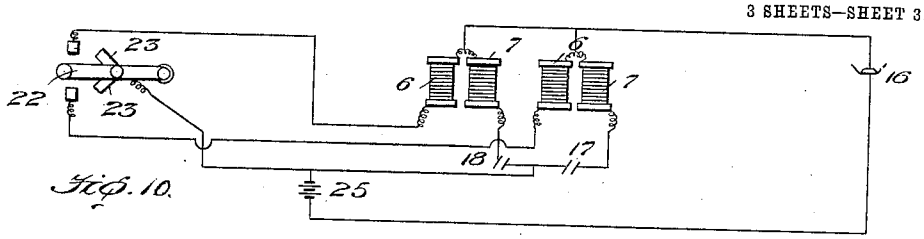


Fig. 10.

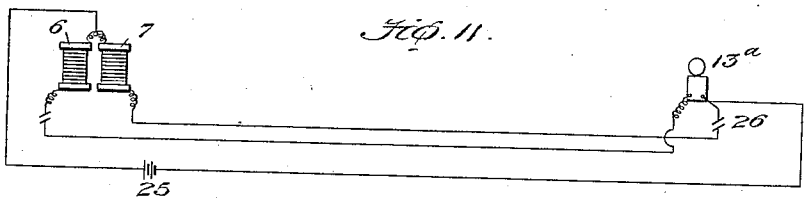


Fig. 11.

Fig. 12.

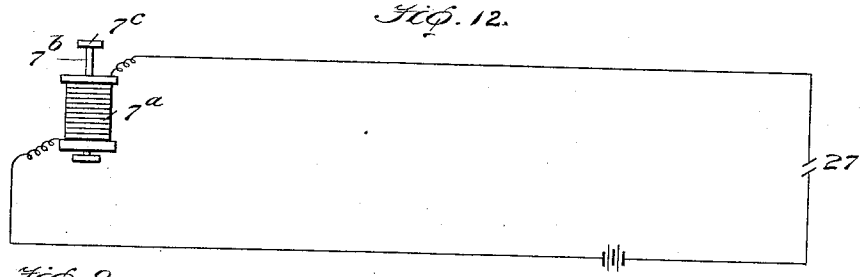
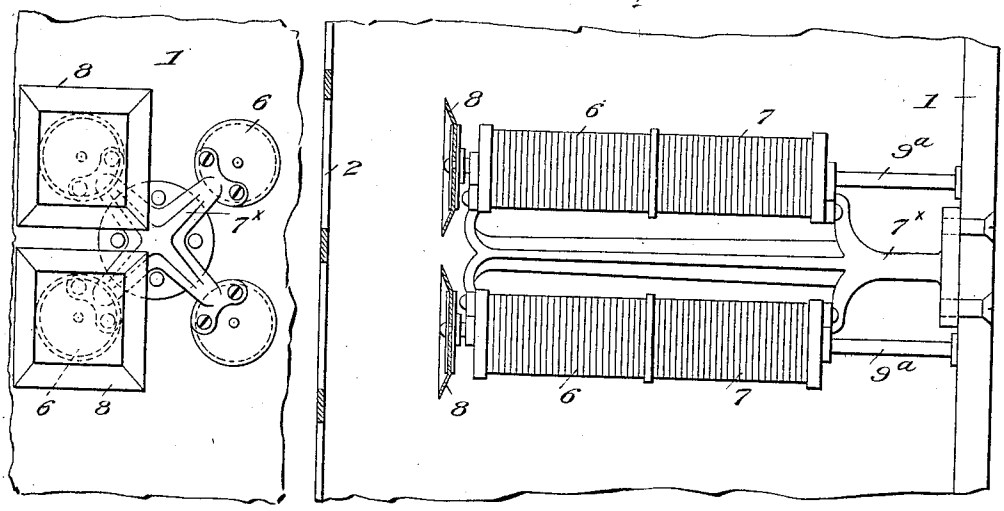


Fig. 8.

Fig. 9.



Witnesses

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UNITED STATES PATENT OFFICE.

FREDERICK C. GRAHAM, OF NEW YORK, N. Y.

ELECTRIC ANNUNCIATOR AND SIGNALING SYSTEM.

1,038,117. Specification of Letters Patent. **Patented Sept. 10, 1912.**

Application filed June 14, 1911. Serial No. 633,188.

To all whom it may concern:

Be it known that I, FREDERICK C. GRAHAM, a citizen of the United States, residing at New York city, county of New York, and State of New York, have invented certain new and useful Improvements in Electric Annunciators and Signaling Systems, of which the following is a specification.

My invention relates to electric annunciators and signaling systems.

The present invention has for its object the provision of a novel electric annunciator of the flash type and a novel system, all especially adapted for use in connection with elevators, apartment houses and hotels, although not restricted to such uses.

The present invention eliminates much of the complication of electric flash signaling systems heretofore used, doing away with master machines, separate devices attached to overhead sheaves when used on an elevator car when used in that connection, much of the wiring and in so far as the annunciator itself is concerned, it provides but one light for all indications.

The present invention is adapted for use in various connections, as a signaling system and an annunciator and contemplates the provision of an annunciator using a single light for all of the flash openings, solenoids arranged in pairs for each flash opening and adapted to coöperate with the shutters in a novel manner, and in respect to the system, novel circuit arrangements, whereby a return call signal may be utilized at the push button, if desired.

In the accompanying drawings:—Figures 1, 2 and 3 are detail views of the flash signal annunciator, wherever used, as shown in front, side and plan views, certain parts being removed and broken away; Figs. 4, 5 and 6, plan, front and ends views of return call flash annunciator, wherever used, parts being removed and broken away; Fig. 7, detail views of the shutter and solenoid cores as used for a given induction on the annunciators of Figs. 1, 2, 3, 4, 5 and 6; Figs. 8 and 9, detail views of a modified shutter and solenoid construction for an annunciator, enabling the parts to be arranged very compactly; Fig. 10, a diagram of the connections for a complete elevator signaling system; Fig. 11, a diagram of the connections for the return call annunciator of Figs. 4, 5 and 6; and Fig. 12, a similar diagram showing how the shutter may be thrown back by a single solenoid and susceptible of being reset to blanket the flash opening by hand.

Referring first to Figs. 1, 2 and 3, indicating the annunciator as used in any connection, the case 1 contains one or more vertically arranged rows of flash openings 2. Within the case is a single elongated electric incandescent lamp 3 which serves to flash the light through any of the openings 2 which may be uncovered, thus distinguishing from flash annunciators heretofore employed which use a separate incandescent lamp for each of the flash openings 2. When any one of the openings 2 is uncovered, the light is displayed therethrough. This annunciator has suitable frames 4 having horizontal parts 5 which support the pairs of solenoids 6 and 7, a pair being used in connection with each flash opening 2. The shutter and armature arrangement is as shown in Fig. 7, where a shutter 8 of suitable construction and size to cover one of the openings 2 is provided with a central armature or core 9 and with a connecting arm or rod 10 secured to a head 11 which is provided with a core or armature 12. The core or armature 9 is received within the solenoid 7 and the core or armature 12 within the solenoid 6. When the circuit of the solenoid 7 is closed, the armature 9 is drawn thereinto, thus uncovering the opening 2 through which the light flashes from the lamp 3. When the circuit of solenoid 6 is closed, the armature 12 is drawn thereinto and the shutter 8 is made to cover the opening 2. The annunciator is provided with a bell 13 which is included in the circuit so that when any number is displayed, the bell rings, as usual.

In the return call annunciator shown in Figs. 4, 5 and 6, the arrangement is substantially that set forth, but the lamp 3^a is provided with a reflector 14 which, however, may be used on the lamp 3. A bell 13^a is used in this form of the annunciator. The arrangement of the parts is shown as horizontal which, however, is not essential.

In the construction shown in Figs. 8 and 9, the pairs of solenoids 6 and 7 are arranged in tandem, four sets of coils for as many flash openings 2 being carried by a single spider 7^x. The core 9^a runs entirely through each pair of solenoids and the magnet or

iron part thereof is so arranged that it will be sucked into one or the other of said solenoids according to energization thereof.

Referring to Fig. 10, when the button 17 is pressed, the solenoid 7 is energized by the current from battery or generator 25, whereupon the shutter 8 is retracted and the light is flashed through the given opening 2 according to the point from which the call comes. Similarly, if the button 18 is pressed, the coil 7 is energized. Whichever shutter is withdrawn, when the lever 22 is moved, the circuit embracing the solenoid 6 is energized by a contact 23 and said solenoid closes the shutter and blankets the light.

Referring to Fig. 11, when the button 26 is pressed, the solenoid 7 is energized and the signal displayed. When the solenoid 6 is energized to blanket the signal, the bell 13^a rings at the place where the button 26 was pressed, indicating that the call has been noted.

In the diagram shown in Fig. 12, the call button 27 controls the circuit of a solenoid 7^a which uncovers the flash opening by contraction of armature 7^b carrying shutter 7^c. When this construction is used, the annunciator has to be reset by hand.

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

In an annunciator, the combination with flash openings, of a pair of solenoids for each flash opening, connected cores for said solenoids, said cores entering opposite ends of the respective solenoids, and a shutter carried by and movable with said cores adapted for covering or uncovering the flash opening controlled by a given pair of solenoids.

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

FREDERICK C. GRAHAM.

Witnesses:
H. C. TUXBURY,
F. T. O'NEILL.