(No Model.)

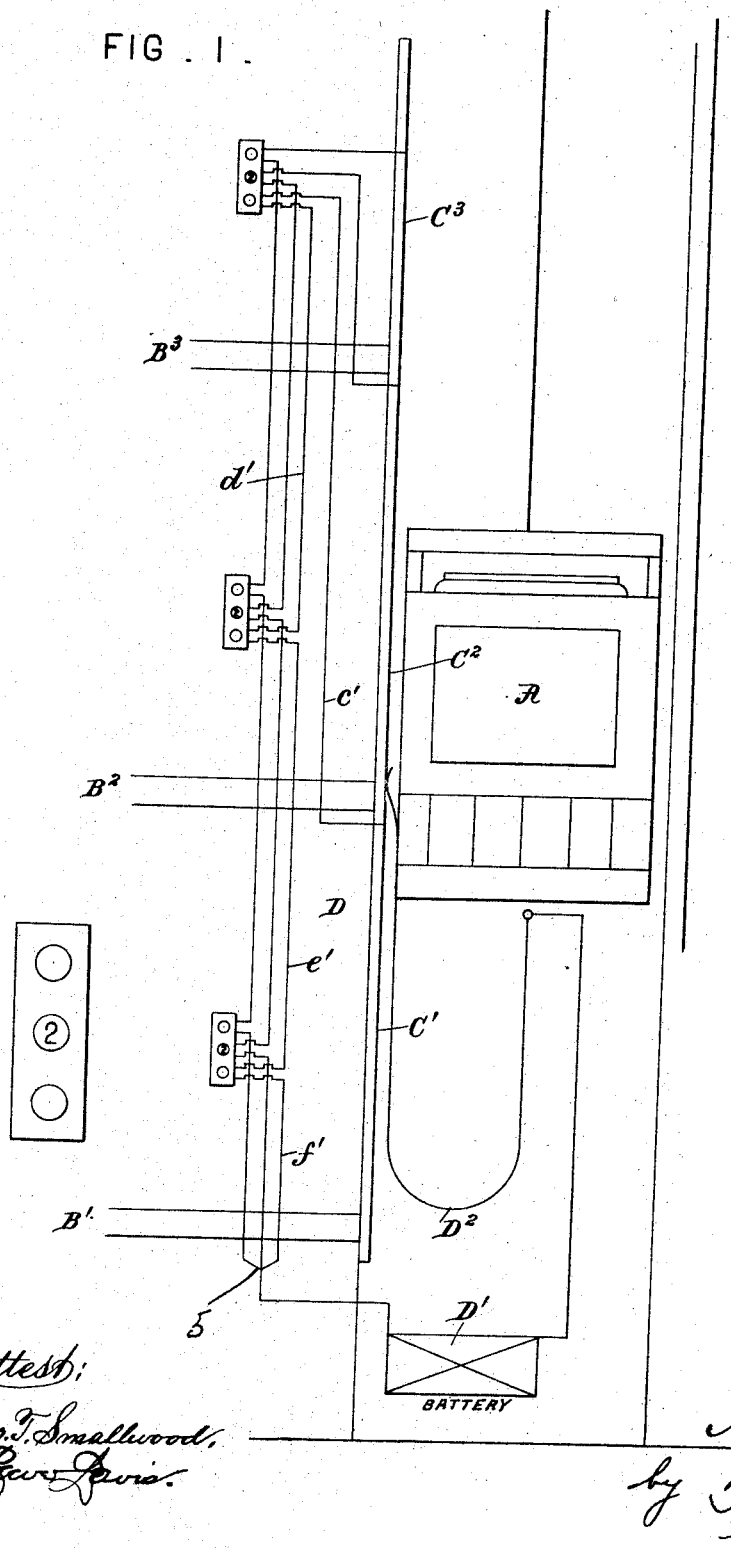
2 Sheets—Sheet 1.

N. HISS.

ELEVATOR INDICATOR.

No. 489,005. Patented Jan. 3, 1893.

FIG. 1.



Attest;
Geo. T. Smallwood,
Benj. Davis.

Inventor;
Nelson Hiss,
by Pollock & Mauro
his attorneys.

(No Model.)

2 Sheets—Sheet 2.

N. HISS.

ELEVATOR INDICATOR.

No. 489,005. Patented Jan. 3, 1893.

FIG. II.

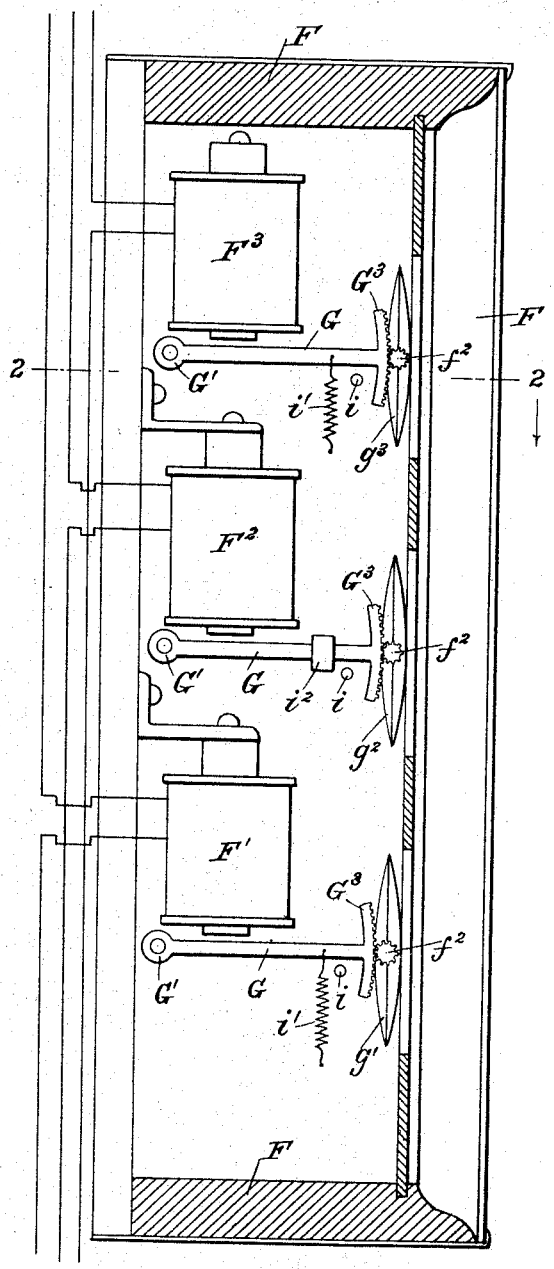
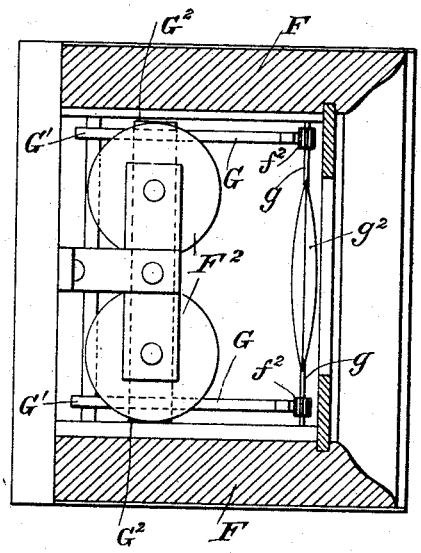


FIG. III.



Attest:
Geo. T. Smallwood.
Chas. Lowe.

Inventor:
Nelson Hiss,
by Pollock & Manns,
his attorneys.

UNITED STATES PATENT OFFICE.

NELSON HISS, OF BALTIMORE, MARYLAND.

ELEVATOR-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 489,005, dated January 3, 1893.

Application filed March 24, 1892. Serial No. 426,254. (No model.)

To all whom it may concern:

Be it known that I, NELSON HISS, of Baltimore, Maryland, have invented a new and useful Improvement in Elevator-Indicators, which improvement is fully set forth in the following specification.

This invention relates to the construction of elevator indicators, or devices which are placed on the several floors of a building adjacent to the elevator shaft, and whose function is to indicate the position of the car and the direction in which it is moving.

Indicators in use are operated mechanically, and are objectionable on account of their liability to derangement, and the frequent attention they require to keep them in order. The familiar form of indicator in most general use comprises a finger which travels in unison with the car, and shows by a graduated scale the position of the latter.

The indicator constructed according to the present invention is operated electrically, and is designed to be certain and reliable in action, while of very simple construction.

In carrying out the invention I arrange a fixed conductor in the form of a strip or rail, extending the length of the elevator shaft, and divided into sections, electrically insulated from each other, at the several floors. These sections form parts respectively of several parallel or multiple arc circuits each of which leads to an indicator magnet at each of the floors. These magnets control each a visual signal, such as an annunciator shutter or the like, and as a sliding brush or spring contact carried by the car closes the several branch-circuits in succession, the visual signals will operate, one after another, as the car passes from floor to floor, and by their number and order of operation show the position and direction of motion of the car.

In the accompanying drawings forming a part of this specification, wherein I have shown my indicator as applied to an elevator in a three story building, Figure I is a diagram of the elevator shaft showing the indicators (on the different floors), the elevator, and their electrical connections; Fig. II, a vertical central section through the indicator, and Fig. III, a horizontal section on line 2 (Fig. II).

A represents the elevator and B', B^2, B^3 the respective floors of the building. Extending lengthwise of the elevator shaft is a fixed conductor divided into sections C', C^2, C^3 each extending from one floor to the next, the several strips or sections being insulated.

D is a spring contact or brush secured to the elevator and making a sliding contact with the fixed strips C', C^2, C^3. Spring contact D is connected with one pole of a generator D' by a flexible conductor D^2 which travels with the elevator car.

The floor sections C', C^2, C^3 constitute terminals of several parallel branches of the main-circuit, each branch containing an operating magnet for operating a visual signal at each floor. This part of the system is shown in Figs. II and III, which represent the construction of the indicators, which are alike at all the floors.

F', F^2, F^3 represent the controlling magnets inclosed in a casing F, there being one magnet in each of the branches of the main circuit, that is one for each floor; and it will of course be understood that the magnet F' at any floor is connected in series with all the other magnets F' at the other floors, so that when the car is between the first and second floors the circuit will be closed through all the magnets F'. The circuit of the first floor may be traced from the strip of section C' by wire c' to the magnet F' at the uppermost indicator, thence by wire d' to the corresponding indicator-magnet at the second floor, thence by wire e' to the first floor indicator and thence by wire f' to the point 5, where all the branches unite. The other branch circuits may be readily traced without further description.

Each magnet when energized operates a visual signal so as to display an appropriate numeral. As shown in the drawings the visual signals are in the form of disks g', g^2, g^3 each mounted on a spindle g having small pinions f^2. Beneath each magnet is a pair of arms G, pivoted at G' and supporting the armature G^2 of the magnet. At the outer end of the arms G are segmental racks G^3 engaging with the pinions f^2 referred to above. Normally (*i. e.* when the controlling magnet is out of circuit) the arms rest against stop pins i, a spring i' or weight i^2 being used to depress the arms G. When, however, the circuit of the magnet is

closed, the latter attracting its armature will lift the arms G, causing the spindle *g* to make a half turn and thus display the side normally turned inward, upon which side the number designating the position of the car is inscribed. Thus in Fig. 1, the car being at the second floor, the number "2" is displayed at each of the indicators.

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

1. In an electrical indicator system for elevators, the combination with fixed conducting strips, one for each floor, and forming the terminals of multiple arc branches of the signaling circuit; a brush carried by the car, and adapted to close the circuit of said branches in succession as the car moves from floor to floor, a series of indicator magnets in each branch, a series of rotatable disks each having on one side the numeral of the branch to which its controlling magnet belongs, and gearing for rotating each disk so as to expose its numeral when the armature of its magnet is attracted, and for rotating it to its normal position when the circuit of the magnet is broken, substantially as described.

2. In an electrical indicator for elevators, the combination with the casing, of a shaft journaled therein, an indicating disk or plate on the shaft, a pinion, a rack-bar pivoted to the casing, a rack on the rack-bar engaging the said pinion, an armature on the rack-bar, and a magnet in the casing above the armature, substantially as described.

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

NELSON HISS.

Witnesses:
JNO. S. BYERLY,
WM. H. JONES.