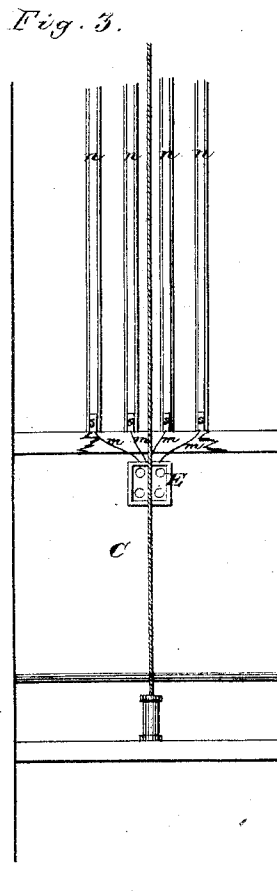
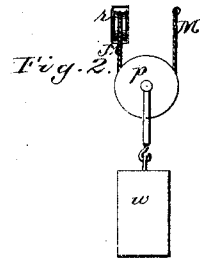
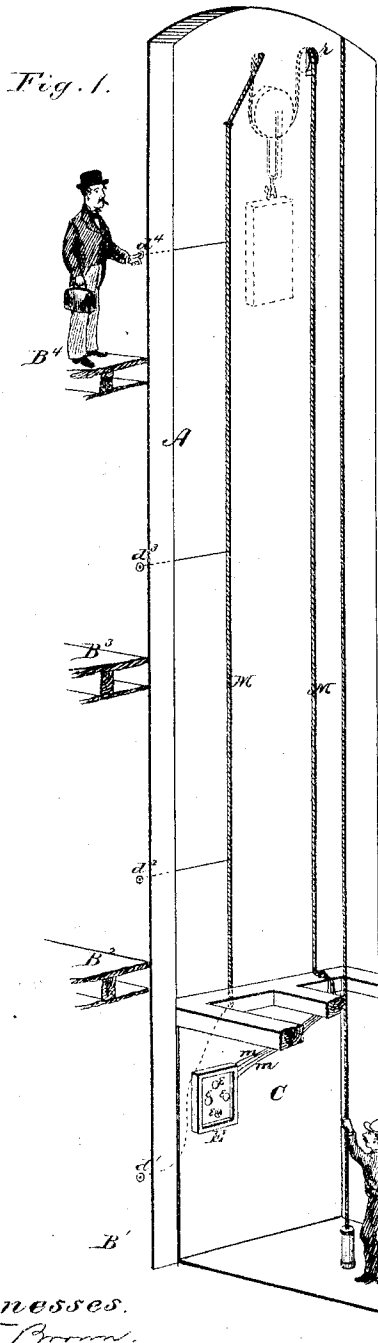


A. H A H L.

Electric Indicators for Elevators.

No. 148,447.

Patented March 10, 1874.



Witnesses.
C. F. Brown.
D. X. Ellsworth

Inventor.
Augustus Hahl
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His Atty.

UNITED STATES PATENT OFFICE.

AUGUSTUS HAHL, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN ELECTRIC INDICATORS FOR ELEVATORS.

Specification forming part of Letters Patent No. **148,447**, dated March 10, 1874; application filed February 7, 1872.

To all whom it may concern:

Be it known that I, AUGUSTUS HAHL, of the city and county of Washington, in the District of Columbia, have invented an Improved Electrical Indicator for Elevators; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings forming part of this specification, in which—

Figure 1 is a perspective view, the floors and some of the timbers being shown in section. Fig. 2 is a detached view of the weight employed for tightening the cable; and Fig. 3 is a front elevation, representing a modification of my apparatus.

Similar letters of reference in the accompanying drawings denote the same parts.

The elevators heretofore used in hotels and other buildings have been so constructed that, when the signal is sounded from any floor, the attendant, if in the car, cannot see the indicator without stepping out upon the floor.

My improvement consists in attaching the indicator to the wall of the car, where the attendant can at all times see it without leaving his place, and in connecting said indicator to the knobs on the different floors by means of suitable conductors, substantially as hereinafter described.

In the drawings, *A* is the wall of the building. *B*¹ *B*² *B*³ *B*⁴ are the different floors; *d*¹ *d*² *d*³ *d*⁴, knobs projecting from the wall above each floor, which, being drawn out, thrust in, or turned on their axis, complete or break the electrical or galvanic circuit, and thereby signal to the attendant to raise or lower the car to the floor whence the signal is given. *C*, the car; *E*, the indicator; and *m m m m*, insulated strands connected to the indicating-plates *e e*, said strands being preferably wound into a cable at *M*. One end of the cable, being attached to the car, is movable, while the other, attached to the wall, is fixed. The slack of the cable may be allowed to hang loosely in the space between the car and the wall; or provision may be made for taking it up, as shown in Figs. 1 and 2, where the cable is represented as passing over a pulley, *r*, attached to the wall, and then down under another pulley, *p*, secured to a weight, *w*, said last-mentioned pulley and weight being sup-

ported by the bight of the rope, as shown in the drawings.

Instead of this apparatus, the several knobs *d*¹ *d*² *d*³ *d*⁴ might be connected, by suitable conductors, to metallic strips *n n n n*, secured to the wall, as shown in Fig. 3, the several strands *m m m m* being each connected to a spring, *s*, supported upon the car, and sliding in contact with the strips *n*, so as to make an electrical connection between each plate of the indicator *E* and its appropriate knob *d*¹ *d*⁴, &c.

The indicating plate or face *E* is preferably constructed on the general principle of my electrical indicator patented February 28, 1871, No. 112,242, although any other form of apparatus may be employed without departing from the principle of this invention.

I prefer to place the cards or plates bearing the numbers of the floors behind the face of the box, and arrange openings in said face, so that, when the knob is pulled on any floor, the electric current thereby sent will move the card numbered for that floor in front of the opening, and thereby show the number of the floor where the car is wanted.

The attendant hearing the sound of the alarm-bell, which is operated simultaneously with the movable card, has only to glance at the face of the box or case to see where his services are required. The apparatus can be easily adjusted so that the movement of the card numbered 1 will cause the bell to strike once, while the movement of card No. 2 will cause it to strike twice, &c., thus indicating both to the eye and the ear the exact place where the car is wanted.

Having thus described my invention, what I claim is—

1. The circuit making and breaking apparatus *d*¹ *d*², &c., and the connecting conductor *M* or *n*, in combination with an indicating apparatus, *E*, arranged upon the car so as to be movable therewith, substantially as and for the purpose as described.

2. The weight *w* and pulley *p*, in combination with the cable *M* of an electrical indicator for elevators, substantially as and for the purposes herein set forth.

Witnesses:

AUG. HAHL.

NATHAN K. ELLSWORTH,
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