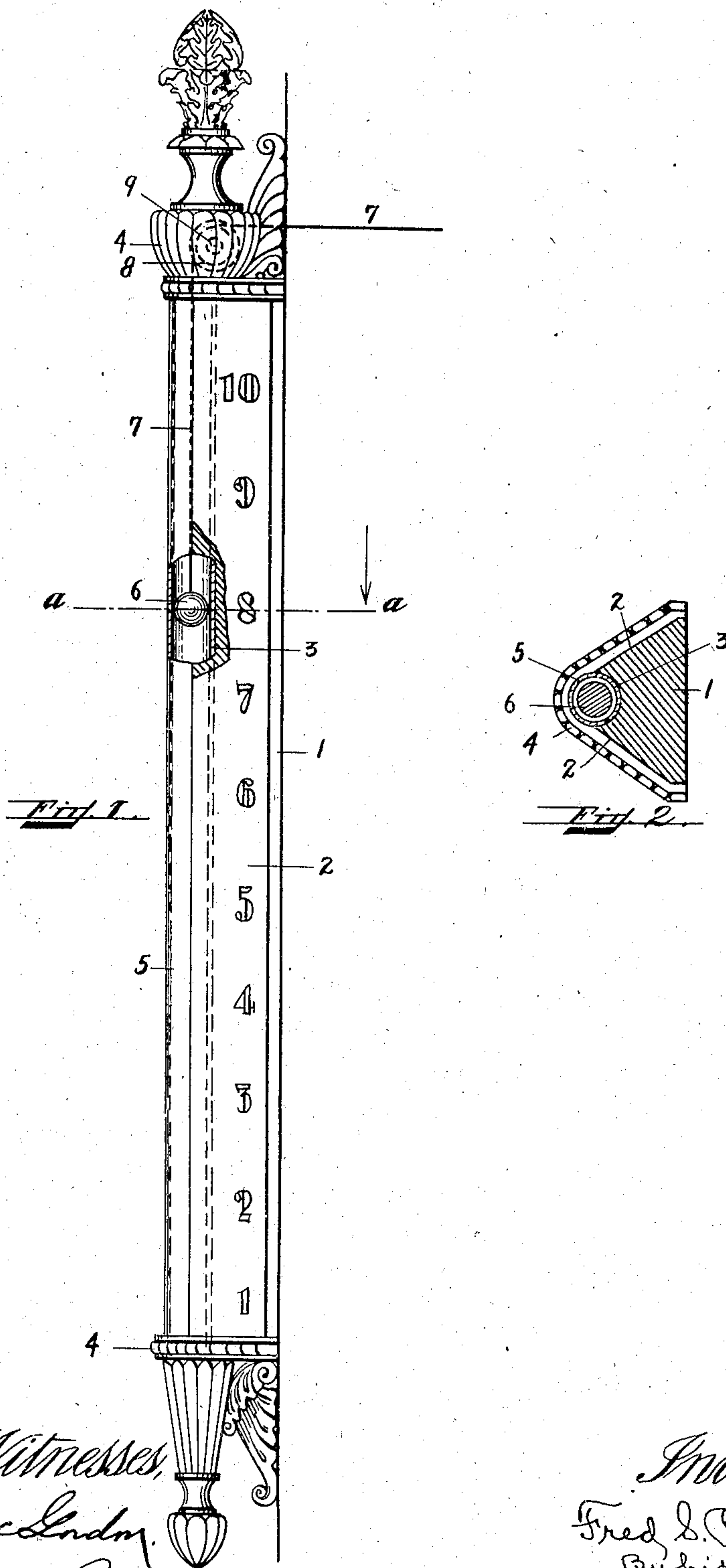


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PATENTED JUNE 6, 1905.

F. S. PAYNE.  
MECHANICAL INDICATOR FOR ELEVATORS.

APPLICATION FILED MAR. 28, 1904.



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# UNITED STATES PATENT OFFICE.

FRED S. PAYNE, OF BOSTON, MASSACHUSETTS.

## MECHANICAL INDICATOR FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 791,723, dated June 6, 1905.

Application filed March 28, 1904. Serial No. 200,493.

*To all whom it may concern:*

Be it known that I, FRED S. PAYNE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Mechanical Indicators for Elevators, of which the following is a specification, reference being had to the accompanying drawings.

The present invention relates to that class of visual signals for elevators whereby the position and movement of the elevator-car is indicated at all time by means of a ball or other object being caused to ascend and descend within a transparent tube in correspondence with the movement of the elevator-car.

I am aware that there are upon the market numerous devices that adopt a transparent tube containing liquid, both with and without the addition of a ball or other object, to indicate the position and movement of the elevator-car.

I am also aware that there are upon the market other devices that employ a weight incased within a signal-box, the weight being operated by means of a flexible connection attached to said weight and to the operating mechanism. These latter devices are usually constructed in a rectangular form, the weight being visible only from the front or front and back sides and the flexible connection usually being plainly discernible.

My experience has led me to observe that those indicators employing liquid require frequent readjustment and constant attention and care.

In my present invention my object has been to provide a visual signaling device for elevators which shall, first, indicate at all times the position and movement of the elevator-car by means of a ball or index and characters representing one or more floors through which the elevator passes, both said index and characters being visible from either side and front of the indicator; second, contain a flexible connection attached to said ball or index and to means for operating said index; third, provide means for rendering said flexible connection inconspicuous and practically invisible to a person standing a few feet away from

the indicator. I accomplish these objects by the means hereinafter specified, and as illustrated in the accompanying drawings.

I preferably use my present invention in connection with my mechanical indicator mechanism described and shown in my United States Patent No. 734,744 of July 28, 1903; but it is obvious that the invention herein described is capable of being attached to various other forms of mechanical indicator mechanisms.

Figure 1 represents a side elevation. Fig. 2 represents a sectional plan view on line *a a* shown in Fig. 1.

In the drawings, 1 represents a back, which is preferably formed with inclined sides 2 2, sloping back and away from the front toward the back. Between inclined sides 2 2 is formed concave surface 3, which is substantially semicylindrical, as shown in Fig. 2. This concave surface 3 is in the construction herein shown colored, so as to be practically of the same color as the flexible connection hereinafter described. Upon inclined sides 2 2 I may place characters representing one or more floors of the building through which the elevator-car passes.

4 4 are brackets attached to back 1.

5 is a tube made of any transparent material, but preferably of glass, which in the construction herein shown is circular in form and extends between brackets 4 4 and is thereby supported in its place.

6 is a ball or index within tube 5.

7 is a flexible connection attached to weight 6 and also to the operating mechanism.

8 is a sheave incased within the upper bracket 4 and turns on shaft 9. Connection 7 passes over sheave 8.

It is well known that when looking at the side of a tube having a curved surface there is always a certain line directly opposite the line of vision from which the light is completely reflected to the observer's eye, rendering the material of which the tube itself is composed immediately under this line of light indistinguishable. I propose to render the supporting means of an index contained in a cylindrical tube invisible by locating it in the tube in such position that when viewed from



the exterior of the tube it will always be behind this line of light of total reflection, and thus be rendered invisible. It will also be noticed that the back 1 is substantially semi-circular in form, and this covers the back half of the tube, preventing the access to the tube of any light which might interfere with the sharpness of the line of total reflection on the front of the tube. In practice I preferably use a tube relatively small as compared with the base, and the index or ball nearly fills the bore of the tube and is secured to the thread, so as to cause the latter to lie approximately in the axis of the tube. The invisibility of the thread is aided by making it (the tube) and the background of substantially the same color, so that there will be no contrasts. A white glass tube, in connection with a white or cream-colored thread and background, I have found in practice to give good results.

What I claim, and desire to secure by Letters Patent, is—

1. An elevator-indicator comprising a back having a scale, a transparent cylindrical tube partially embedded in said back, an index in said tube, and a flexible connection between said index and a source of power, whereby the said connection lies in said tube between the back and the line of total reflection of light from the outside of the tube, substantially as described.

2. The combination with a back, of a transparent tube partially embedded therein, said tube having an exterior curved surface, an index in said tube, and a thread connected with said index and a source of power, and disposed in said tube between the back and the line of total reflection of light from the exterior curved surface thereof, substantially as described.

3. An indicator for elevators, comprising a straight, transparent tube having a curved exterior surface, adapted to reflect light, an index contained therein, and a flexible connection between said index and a source of power, said connection being disposed in said tube so as to lie behind the line of total reflection of light from the exterior surface of the tube, substantially as described.

4. In a mechanical indicator for elevators, the combination with a transparent cylindrical tube, of a base having a semicircular groove in which said tube is embedded, a scale in proximity to said tube, an index movable longitudinally therein, and a flexible connection between said index and a source of power, the flexible connection being disposed in the axis of the tube, substantially as described.

5. In a mechanical indicator for elevators, the combination with a straight transparent cylindrical tube, of a base having a semicircular groove in which said tube is embedded, scales on the sides of said base, the grooved portion of said base being colored to harmonize with the tube, and a flexible connection between said index and a source of power, and extending approximately in the axis of the tube, substantially as described.

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

FRED S. PAYNE.

Witnesses:

ISAAC GORDON,  
CARROLL E. PILLSBURY.