(No Model.)

W. F. HORN.

APPARATUS FOR WORKING ELECTRIC BELLS, &c.

No. 306,255. Patented Oct. 7, 1884.

Fig. 1

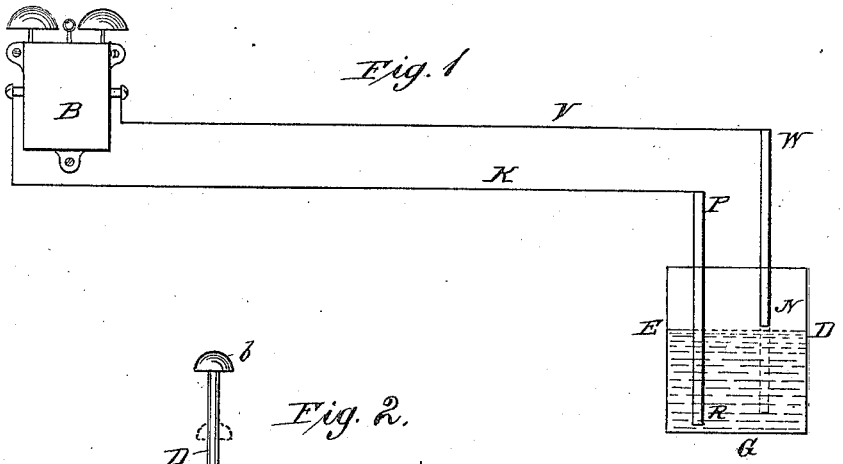
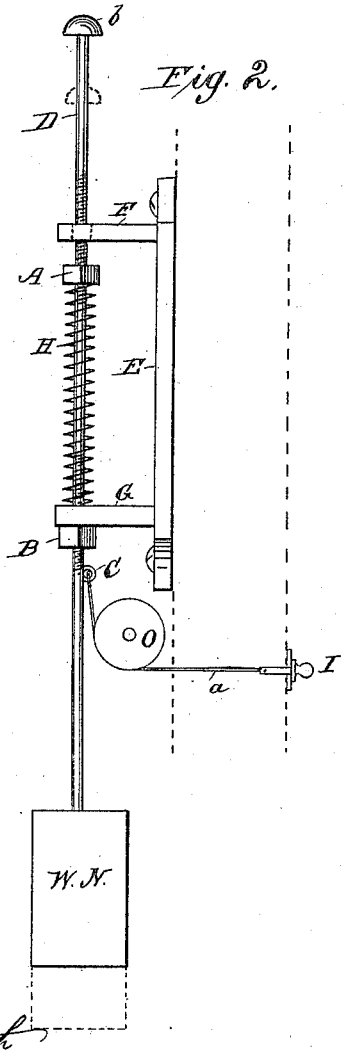


Fig. 2.



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APPARATUS FOR WORKING ELECTRIC BELLS, &c.

SPECIFICATION forming part of Letters Patent No. 306,255, dated October 7, 1884.

Application filed January 29, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILBUR F. HORN, a citizen of the United States, residing at Carlisle, in the county of Cumberland and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Working Electric Bells, &c., of which the following is a description.

My invention relates to improved apparatus for operating electric bells, annunciators, alarms, buzzers, gas-lighting devices, &c.; and it consists in the peculiar construction and arrangement of parts, whereby the bell is rung or other electrical effect produced by the immersion of one of the battery-plates into the exciting-fluid, as hereinafter fully described.

Figure 1 of the drawings is a diagram of an electric circuit, bell, and battery, illustrating in a simplified form the general application of my invention; and Fig. 2 is a side elevation illustrating the mechanism in detail for carrying out my invention in its application to door-bells, push-buttons, &c.

Referring to Fig. 1, the battery-cell E D G is provided with one plate or element, P R, which is permanently immersed in the exciting-fluid, and another plate or element, W N, which normally is out of contact with the exciting-fluid, whose level is shown by the line E D. These two plates, which are the positive and negative elements of the battery, are permanently connected to the circuit-wires V K, which have a permanently-closed circuit through the electro-magnet of the bell B. Now, to ring the bell at B, display a signal, or produce any other mechanical or electrical effect at a distance, the plate W N is immersed into the exciting-fluid of the battery and the current established, the plate being immediately withdrawn again as soon as the desired effect is produced.

To show how the proper movement of the plate W N may be regulated, I now refer to Fig. 2, in which said plate is attached to the lower end of a sliding rod, D, moving in the offsetting plates F G of a bracket, E, which is to be secured by screws to the inside of the door-frame, or in other convenient place, in proper proximity to the bell-knob of the door. This rod D has wound around it, between the plates F G, a spiral spring, H, which bears at its lower end against the plate G, and at its upper end against a screw-nut, A, which is arranged upon a threaded portion of rod D. In this relation the spring H, it will be seen, serves to hold the rod D and the attached battery element up to its position in which it is out of contact with the exciting-fluid. To operate this rod the bell knob or pull I is attached to a wire, *a*, that passes around a pulley, O, and fastens to a ring or projection, C, on the rod D, so that when the knob or pull I is drawn back the rod D is brought down against the tension of spring H, and the battery-plate W N is immersed in the exciting-fluid and a current transmitted through the circuit-wire until the rod D is allowed to rise again from the action of the spring.

Just beneath the plate G there is a nut, B, which is screwed onto a thread upon the rod, and which acts as a stop to the upward movement of the said rod and the battery-plate in leaving the exciting-fluid. This nut B, and also the nut A above, may be adjusted on the rod to preserve the proper relation of the movable battery element to the exciting-fluid, or to increase or diminish the tension of the spring. Thus, if from evaporation of the exciting-fluid, or changes in the length of the rod from variation in temperature, the plate W N is not sufficiently immersed by a depression of rod D, then the nut B is turned so as to adjust the rod D and plate W N downwardly, so that it rests just above the level of the exciting-fluid, and enters it fully when depressed.

To increase the tension of spring H to make the rod and plate W N act more quickly in rising, the nut A is turned down on rod D, and this, by compressing the spring, causes it to react more strongly in lifting the rod.

On top of the rod D there is a push button or knob, *b*, for operating the rod direct; or, in the place of this and the wire and pulley O, bell-cranks or other suitable devices may be employed.

In carrying out my invention, instead of removing only one of the elements from the exciting-fluid, I may remove both.

Having thus described my invention, what I claim as new is—

1. The combination, with an electric bell or its described equivalent, permanently-connected circuit-wires, and a battery having

normally-dissociated elements, of a pull-knob or its described equivalent, a longitudinally-sliding rod carrying a battery-plate, a spring for retracting it, and an adjustable stop device for determining the extent of retraction, to adapt the movable battery-plate to different positions dependent upon the level of the exciting-fluid, as and for the purpose described.

2. The combination, with an adjustable battery element, of the carrying-rod D, guides F G, spring H, interposed between the same, the adjustable nuts A B, and means for depressing the rod, substantially as and for the purpose described.

WILBUR F. HORN.

Witnesses:
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