

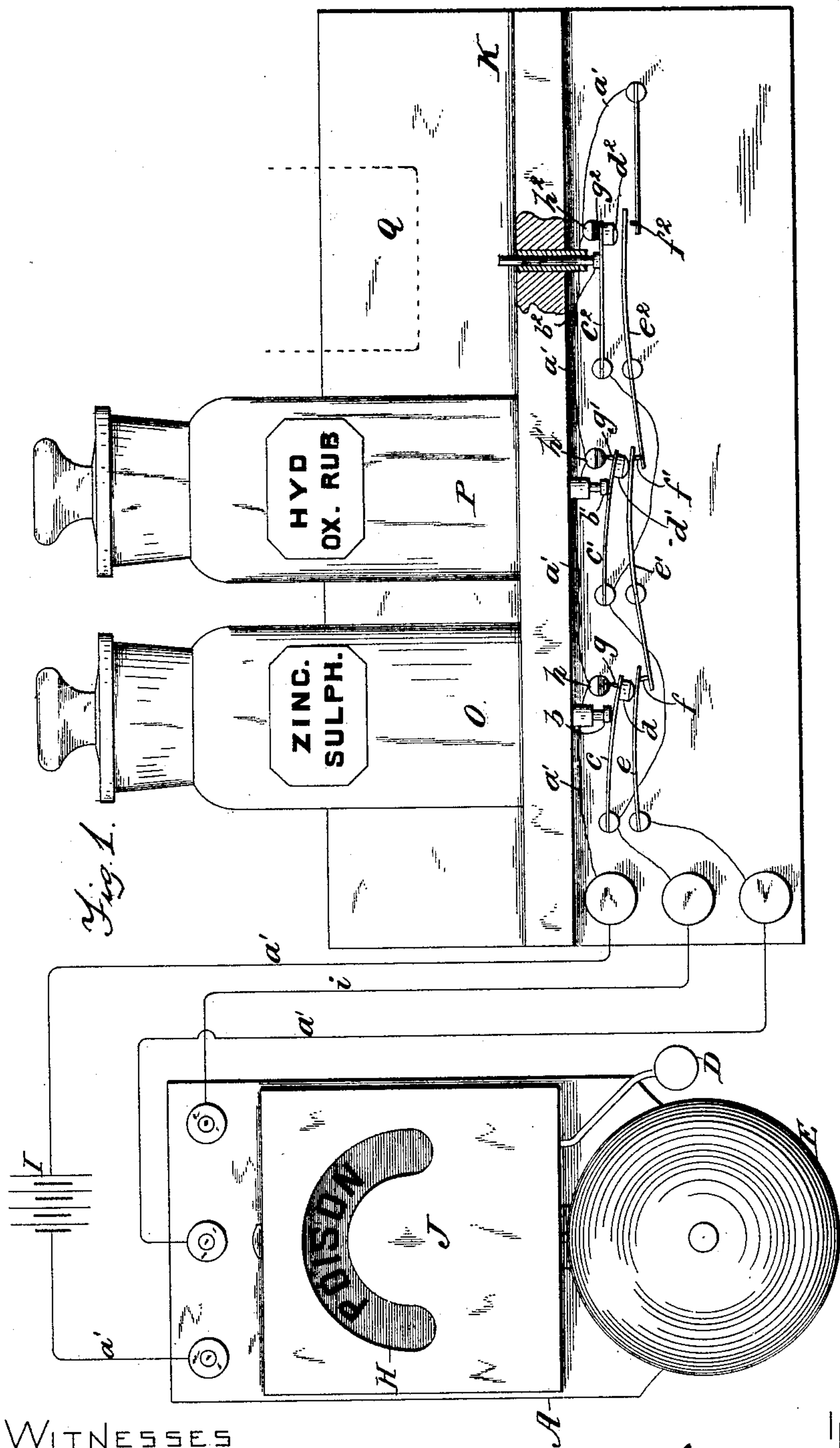
(No Model.)

3 Sheets—Sheet 1.

J. B. SMITH.
ELECTRICAL ANNUNCIATOR.

No. 463,001.

Patented Nov. 10, 1891.



WITNESSES

Living H. Gray.
Geo. W. White

INVENTOR

Joseph B. Smith
by *Wm. Andrew*
his ATTY

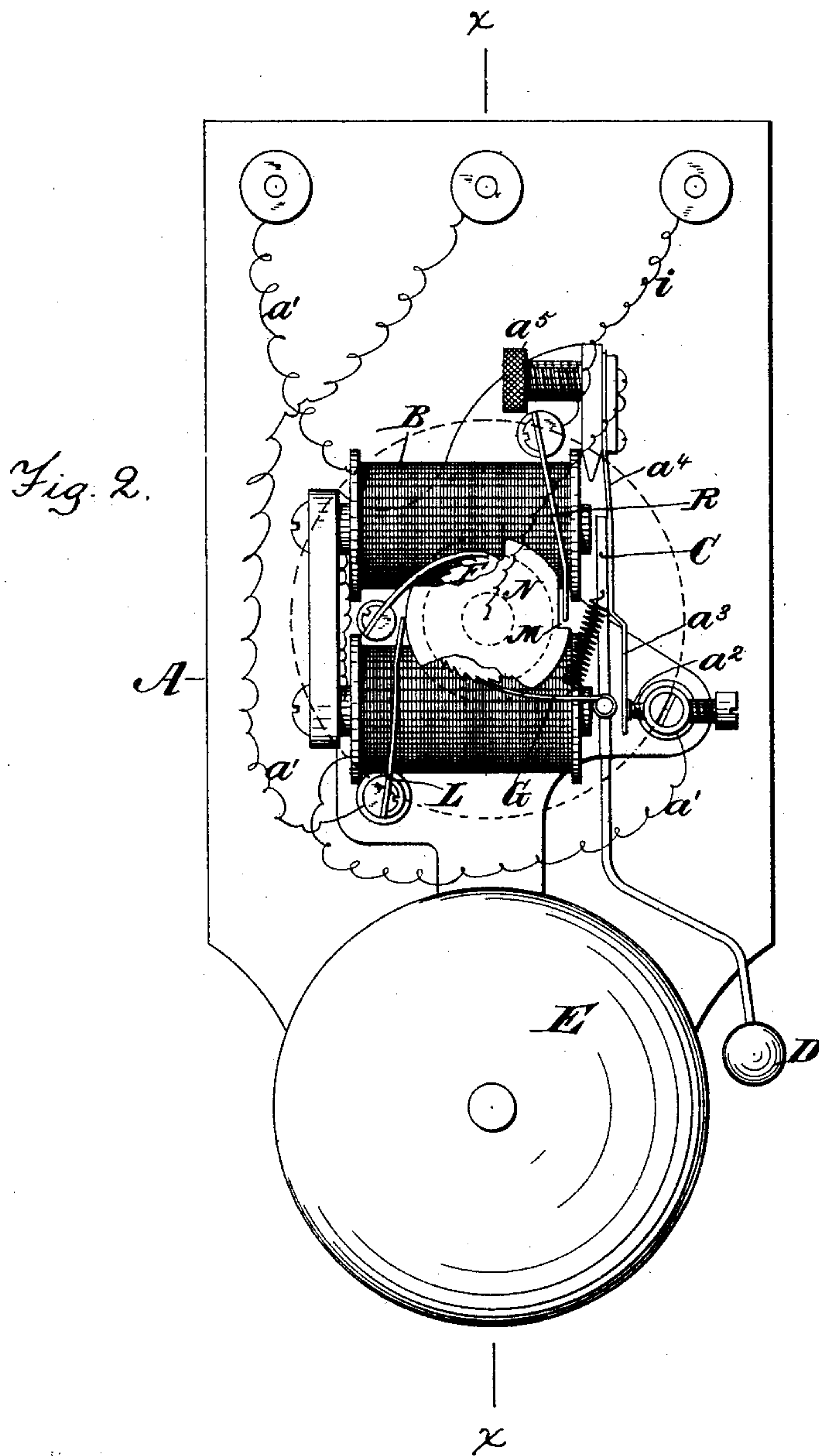
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WITNESSES

Erving H. Fay.
Geo. W. White.

INVENTOR

Joseph Brodie Smith
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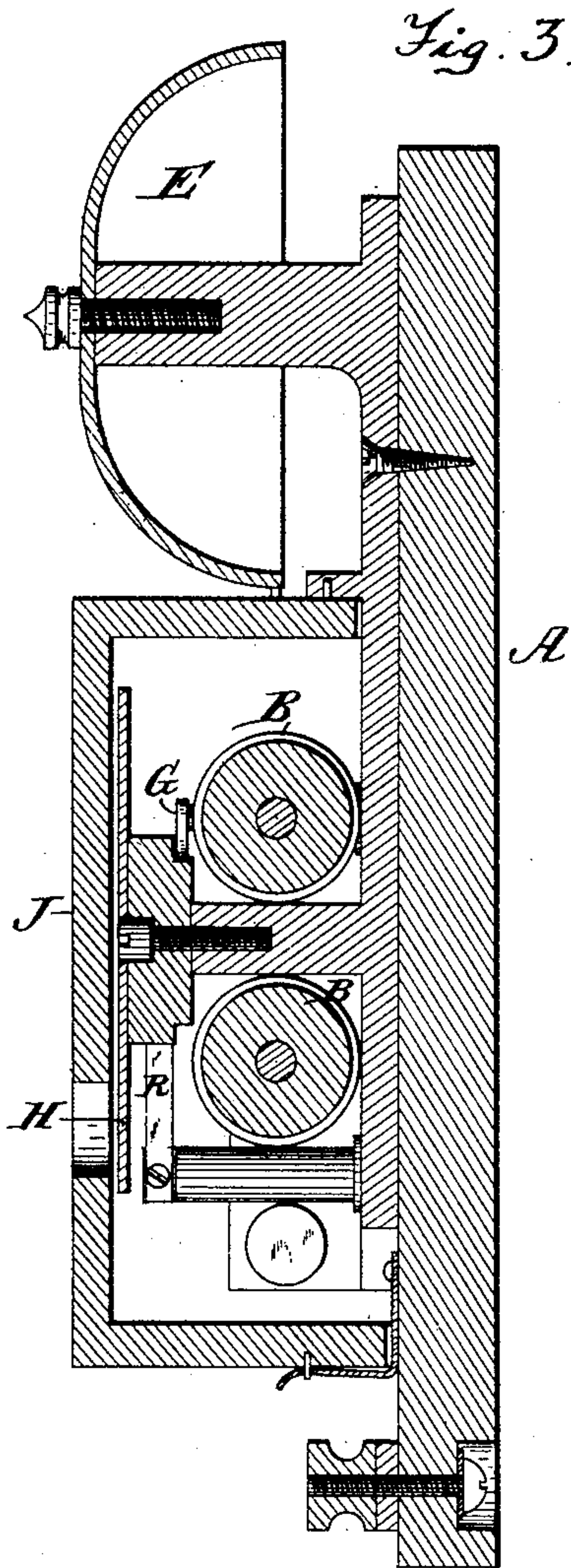
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UNITED STATES PATENT OFFICE.

JOSEPH BRODIE SMITH, OF MANCHESTER, NEW HAMPSHIRE, ASSIGNOR TO
THE ELECTRIC GAS LIGHTING COMPANY, OF MAINE.

ELECTRICAL ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 463,001, dated November 10, 1891.

Application filed August 21, 1889. Serial No. 321,553. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH BRODIE SMITH, of Manchester, in the State of New Hampshire, have invented new and useful Improvements in Electrical Annunciators, of which the following is a full description, reference being had to the accompanying drawings.

My invention relates, particularly, to the application of electricity to the automatic announcement of changes in the position of removable articles, such as bottles, other receptacles, or anything a record of whose presence or absence is desired.

My invention consists, first, in the novel construction, arrangement, and adaptation of the electric circuits and their connections, and then in their combinations with a visual or other indicator and with suitable mechanism for properly and accurately operating the same, as will more readily appear by referring to said drawings, in which—

Figure 1 represents a front elevation of the annunciator, showing one of the bottles or other device as removed. Fig. 2 represents a front elevation of the alarm mechanism, the case and visual indicator being removed. Fig. 3 represents a cross-section on the line $x x$ of Fig. 2.

Referring to the drawings, the letter A designates a base-board, to which the annunciator is attached, and K, Fig. 1, is a shelf having perforations through which are extended a series of vertically-movable plugs, push-buttons, or keys $b b' b^2$, that are held up by springs $c c' c^2$ and adapted to be forced down by the weight of bottles O P Q or other articles placed on the shelf at the points where said plugs or push-buttons are located.

The invention will be best understood by referring to Figs. 1 and 2, which show the position of the various parts of the mechanism when a bottle, as Q, is removed from the shelf K, the others remaining in place. The weight of the bottles on the plugs $b b' b^2$ forces them down onto the springs $c c' c^2$, thereby causing the attached non-conductors $d d' d^2$ to press the springs $e e' e^2$ in contact with the points $f f' f^2$, whereby the current coming from the battery I passes by the circuit a' to the electro-magnet B, which, being energized, attracts its armature C, that is mounted on a spring

a^4 , fastened at the post a^5 . By the attraction of the armature C the pawl G, carried by said armature, is forced against the ratchet-wheel F of a rotary conducting-disk N, causing them to revolve. The attraction of the armature C by the magnet B breaks the circuit between the contact-point a^2 and armature-arm a^3 , thereby de-energizing the magnet, releasing the armature, and re-establishing the circuit between a^2 and a^3 , so that the armature will be again attracted by the magnet. This vibration of the armature will be repeated until the cam-spring L, which has been in contact with the periphery of the disk N, drops into the non-conducting notch M of said disk, which carries the spring out of contact with the conducting-disk. The vibratory armature may carry a hammer D to sound a bell E, as shown.

A visual indicator H, Figs. 1 and 3, may be attached to the ratchet-wheel F or disk N in any convenient manner and revolves therewith until the word, sign, or other visual indication of the absence of said bottle has passed behind the cover J, that normally conceals said indicator. From the spring L, when in contact with the rotary conducting-disk N, the current passes by a prolongation of the circuit a' to the spring e , and thence, if all the bottles are in place, to the contact-point f , spring e' , contact-point f' , spring e^2 , contact-point f^2 , and by a further prolongation of the circuit a' to the battery.

It will be evident now that if the bottle Q be removed, as indicated by dotted lines in Fig. 1, connection will be interrupted at f^2 and established between the contact-points $g^2 h^2$, thus allowing the current to pass to the magnet by the circuit a' to the disk N, as before, and then by spring R through the circuit i to the point g^2 , thereby completing this circuit and actuating the armature C to display the visual indicator H or sound the bell E, or both, as the case may be. If the bottles O or P be removed, the corresponding circuit will be accordingly established through the contact-points $g h$ or $g' h'$ to energize the magnet and bring the visual indicator into view, as described.

When all the bottles or other articles are in place and the closing device or devices $b b' b^2$

are thereby forced down, a circuit will be established through the springs $e e' e^2$ and their contact-points $f f' f^2$, whereby the magnet B will be energized to vibrate the armature C and cause its pawl G to actuate the ratchet F and disk N until the visual indicator II is concealed. By the removal of a bottle or other article the plug or closing device is permitted to rise under the pressure exerted by the springs $c e$ or $c' e'$ or $c^2 e^2$, as the case may be, the circuit is broken at f or f' or f^2 and re-established at g or g' or g^2 , and the magnet is again energized to actuate its armature and give an alarm or cause the visual indicator to be displayed, thereby calling attention to the removal of the bottle or other article. It is obvious that the removal of the bottle may be announced by means of a bell or a visual-indicator, or both, as preferred.

The annunciator may be arranged for use in drug-stores or other places where it is desired that a visual or audible signal shall be given on the removal of any article from its accustomed or proper location.

What I claim as my invention is—

1. In an electrical annunciator, the combination of two electric circuits, a movable plug or push-button adapted and arranged to close either circuit, an electro-magnet forming in turn a part of each circuit, a vibratory armature, a pawl-and-ratchet mechanism actuated by said armature, and a visual indicator carried by the ratchet, substantially as described.

2. The combination of two electric circuits, a series of movable plugs or push-buttons, each adapted and arranged to close either

circuit, an electro-magnet forming in turn a part of each circuit, a rotary conducting-disk, springs adapted to form part of the circuit when in contact with said disk, a vibratory armature, a pawl-and-ratchet mechanism actuated by said armature, and an alarm or indicator, substantially as described.

3. The combination of two electric circuits $a' i$, a plug or push-button b , the springs $c e$, non-conductor d , contact-points $f g h$, the battery I, the electro-magnet B, having a vibratory armature C, the pawl G, ratchet-wheel F, conducting-disk N, having notch M, and the springs L R, substantially as described.

4. The combination of two electric circuits, a movable plug or push-button adapted and arranged to close either circuit, a battery, an electro-magnet having a vibratory armature, a rotary conducting-disk provided with a notch, springs forming part of the circuit when in contact with said disk, a ratchet-wheel, a pawl carried by the armature, and an alarm or indicator actuated by the vibrations of the armature, substantially as described.

5. The combination of the rotary disk N, provided with notch M, the springs L R, the ratchet F, the electro-magnet B, the vibratory armature C, the pawl G, carried by said armature, the contacts $a^2 a^3$, two electric circuits, and a plug or push-button adapted and arranged to close either circuit and energize the electro-magnet, substantially as described.

J. BRODIE SMITH.

Witnesses:

NATHANIEL U. WALKER,
CHARLES H. HANSON.