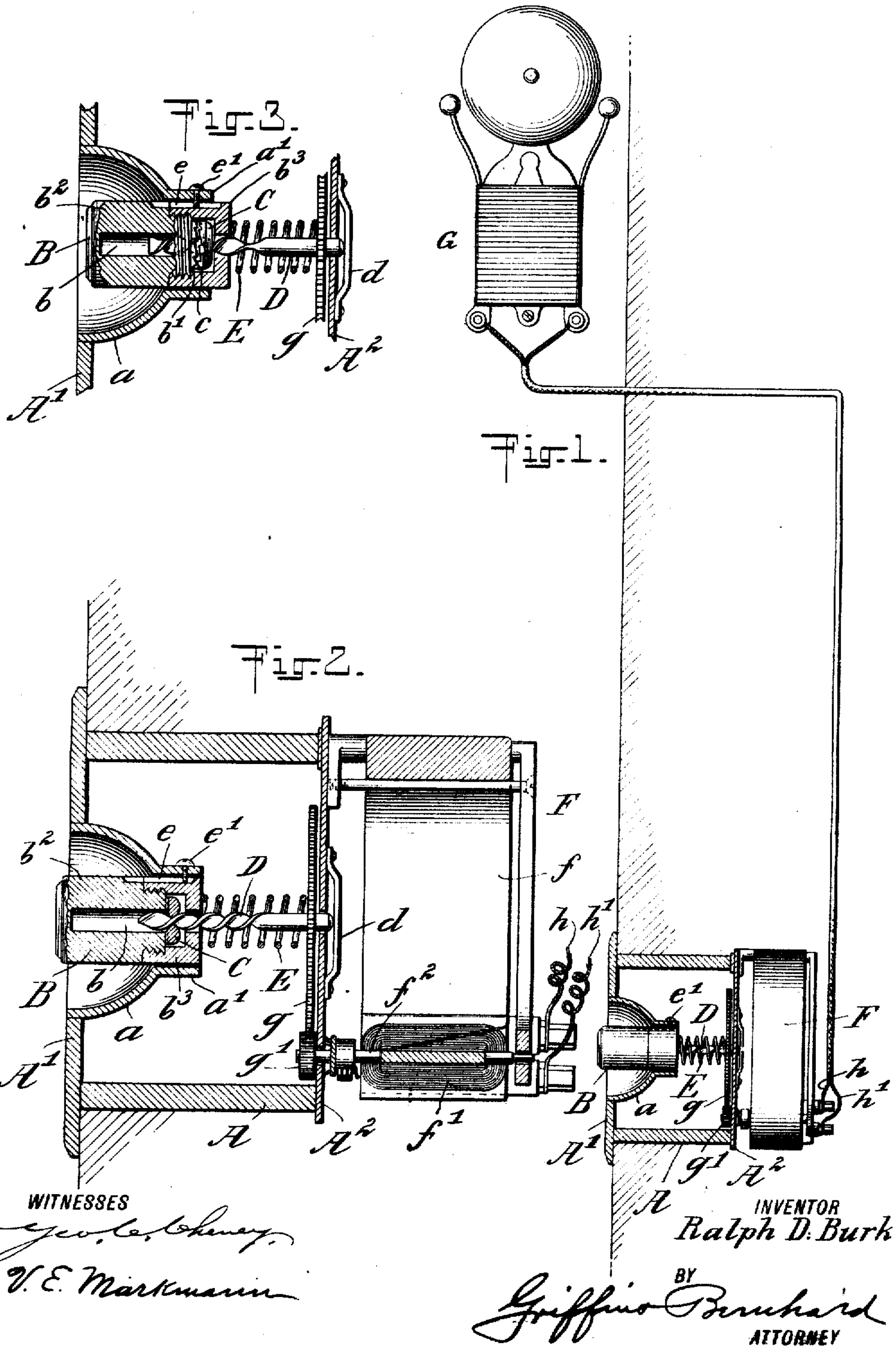


R. D. BURK.
PUSH BUTTON APPARATUS.
APPLICATION FILED OCT. 4, 1907.

931,380.

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UNITED STATES PATENT OFFICE.

RALPH D. BURK, OF NEW YORK, N. Y.

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No. 931,380.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, RALPH D. BURK, a citizen of the United States, residing in the city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented a certain new and useful Push-Button Apparatus, of which the following is a specification.

This invention is a push-button apparatus specially designed to generate an electric current by which may be operated various forms of electrical translating devices, such as call bells, door locks, gas lighters, and other apparatus requiring electric current for their operation.

My object is to dispense with a battery, and more particularly with the dry batteries now so commonly employed in electrical apparatus of the kinds above mentioned.

The disadvantages attending the use of a battery are numerous, such as the formation of a short circuit at the battery, the corrosion of the wires and the contacts, renewal of the battery elements, and the expense and delay of replacing a worn out battery by a new one.

In the present invention, a reciprocating push button is associated with means for directly operating the armature of a compact magneto generator, whereby the operation of said push button generates in the magneto machine a current of electric energy which is utilized for the operation of an appropriate translating device, the latter being in circuit with said magneto generator.

In the accompanying drawings I have illustrated one practical embodiment of the invention, but the construction shown therein is to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 is a view showing my push button apparatus in connection with a translating device in the form of a call bell, a part of said push button apparatus being shown in elevation and another part in vertical section. Fig. 2 is a vertical longitudinal section on an enlarged scale through the push button apparatus, certain parts being in elevation. Fig. 3 is a detail view illustrating the nut in a free or idle position on the return movement of the reciprocating member of push button apparatus.

A frame or casing of any suitable character is employed for supporting the operat-

ing parts and magneto of my push button apparatus. Said frame, A, is shown as having a face plate, A', and a pillar plate, A², but it will be understood that the particular form of frame or casing is not a material part of the invention. Face plate, A', is shown as having a bowl shaped socket member, a, the inner part of which is tubular at a' to serve as a guide for reciprocating member or push button, B.

The reciprocating member, B, is provided with a chamber, b, in which is positioned a ratchet nut, C, and into said chamber extends the forward part of a spiral operating spindle, D, said spindle being in alignment with the member, B. The rear part of spindle, D, is journaled in pillar plate, A², whereas the front part of said spindle is supported in chambered member, B. Said chambered member is provided with a longitudinal groove, e, into which extends a stop pin or stud, e', the latter being fixed to the tubular part, a', of face plate, A'. The reciprocating member, B, is free to travel in the tubular guide, a', and it is limited to rectilinear movement therein by the screw or pin, e', working in longitudinal groove, e, whereby member, B, is restrained from rotary movement, but is free to travel in the direction of its length. The ends of groove, e, in member, B, are closed, so that stop pin, e', will engage with said closed ends, whereby the inward movement of member, B, under the pressure of the hand is arrested by stop pin, e'. Said stop pin serves to arrest, acts against the rear closed end of member, B, under the action of a retractor herein shown as a coiled spring, E. Said spring is represented as fitting loosely around spiral spindle, D, and the front end of the spring acts against the rear closed end of member, B, for the purpose of holding it normally in a position ready for operation, wherein the front part of said member, B, occupies the chamber of socket member, a.

The magneto generator is of any usual or preferred construction, and it is shown as being supported on frame or casing, A. The permanent magnet, f, of said magneto generator, F, is fixed to pillar plate, A², whereas the shaft, f², of armature, f', is journaled in appropriate bearings on pillar plate, A².

The spiral rotatory spindle, D, is mounted in pillar plate and reciprocating member to turn freely therein, and said spindle is held

from endwise movement by any suitable means, such as strap, d , fixed to pillar plate, A^2 , and engaging with one end of spindle, D . On said spindle is rigidly secured a driving gear, g , which meshes with a driven gear, g' , the latter being secured to shaft, f^2 , of armature, f' , whereby gears, g , g' , directly connect spindle, D , with armature of magneto generator.

10 The nut, C , is held confined loosely within chamber, b , of reciprocating member, B , and said nut is provided on one of its faces with ratchet teeth, c , shown more clearly in Fig. 3. The reciprocating member, B , is provided with interior ratchet teeth, b' , which are in opposing relation to ratchet teeth, c , of nut, C , also shown in Fig. 3. When the member, B , is pressed inwardly, the teeth, b' , of said member engage with teeth, c , of nut, C , thereby locking said nut, C , to said member, B , and restraining said nut from rotation within said chamber, b , during said inward movement of member, B . Said operation imparts rotary motion to spiral spindle, D , for the reason that nut, C , has a thread, or section of a thread, arranged to engage with the spiral portion of spindle, D . It follows that the inward movement of member, B , and nut, C , compresses spring, E , at the same time spindle, D , is rotated, and gears, g , g' , transmit the rotary motion of said spindle to armature, f' , of the magneto, whereby said magneto is operated to generate an electric current. When pressure is removed from member, B , spring, E , forces said member back to its normal position, but during this return movement nut, C , is disengaged from the ratchet face, b' , of said member, B , whereby said nut, C , is free to rotate idly on spiral spindle, D , when it is carried back to its normal position within chamber, b , of member, B . This allows spindle, D , to remain at rest and hence the magneto will not be operated during the return movement of member, B , and its associated parts.

In Fig. 1 the translating device is represented in the form of a call bell, G , which is included in a circuit, h , h' , with the magneto, F . It will be understood, however, that other forms of translating devices may be used in connection with the push button apparatus.

The push button or reciprocating member, B , may be of any suitable construction, but, as shown in Figs. 2 and 3, said push button consists of two parts, b^2 , b^3 , the latter having an internal thread and the former having a male thread whereby the two parts may be screwed together detachably, thus enabling easy access to be obtained to chamber, b , for placing nut, C , therein, or removing it therefrom. The male threaded part of the member is provided on its inner extremity or face with the ratchet teeth, b' , with which are adapted to engage the ratchet teeth, c , of

nut, C , thus providing a compact and simple construction of the push button with which coöperates said ratchet nut.

Having thus fully described the invention, what I claim as new, and desire to secure by Letters Patent is:

1. A push button apparatus comprising a push button adapted to be directly operated manually, a chamber near one end of said button, a ratchet nut positioned within said chamber, a spindle coöperating with said nut and adapted to be rotated thereby, a retracting spring encircling said spindle for returning the push button to its normal position, and a magneto operated by the rotation of said spindle.

2. In a push button apparatus, a magneto, a fixed casing separate from said magneto, a push button slidably mounted in said casing, a spindle extending through said push button, a spring acting directly on the push button for holding it in an exposed position for direct operation by hand, and a nut carried by the push button and engaging directly with said spindle for operating the latter upon an inward movement of the push button.

3. In a push button apparatus, a magneto, a casing separate from said magneto, a push button slidably mounted in said casing, said push button having a chamber and a ratchet surface within said chamber, means acting on said push button for returning it to a position exposed for access exteriorly with respect to said casing, a ratchet nut in coöperative relation to the ratchet surface of the push button, and a spindle operatively connected with the ratchet nut and said magneto.

4. In a push button apparatus, a push button comprising two separable parts each provided with an opening, said push button having a chamber and a ratchet surface within said chamber, a spindle adapted to extend into the openings of the parts comprising said push button, a ratchet nut engaging with the spindle and coöperating with the ratchet surface of the push button, and a magneto operated by said spindle.

5. In a push button apparatus, a magneto, a casing, a push button supported within said casing, means for limiting the push button to slidable movement in the casing, a spindle extending through the push button and coöperating with the magneto, a ratchet surface on the push button, a ratchet nut engaging with the spindle and in opposing relation to the ratchet surface of the push button, and a spring acting directly on the push button for holding it normally in a position for movement inwardly with respect to said casing.

6. In a push button apparatus, a magneto generator, a fixed casing provided with a guide, said casing being separate from said

magneto generator, a spindle geared to an armature of said generator, a push button slidable in said casing and its guide, means for precluding said push button from rotating in the guide, and a nut movable with said push button and engaging the spindle for directly operating the latter.

7. In a push button apparatus, the combination of a magneto generator, a fixed casing separate from said magneto generator, a push button slidable in said casing, said push button provided with a chamber and with a ratchet within said chamber, a nut positioned in the chamber, said nut having a ratchet adapted to cooperate with the ratchet of the push button, and a screw spindle operatively fitted to the nut and cooperating with said magneto generator.

8. In a push button apparatus, the combination of a magneto generator, a fixed casing separate from said magneto generator, a screw spindle for operating said magneto generator, a push button adapted to slide directly on said spindle, said push button being slidable in said fixed casing, means cooperating with said casing and the push button for restraining the latter from rotary movement with respect to the casing and the spindle, and a nut movable with the push button and slidable on said spindle for directly operating the latter.

RALPH D. BURK.

Witnesses:

CHARLES K. KENDALL,
EZRA L. BUCKEY.