

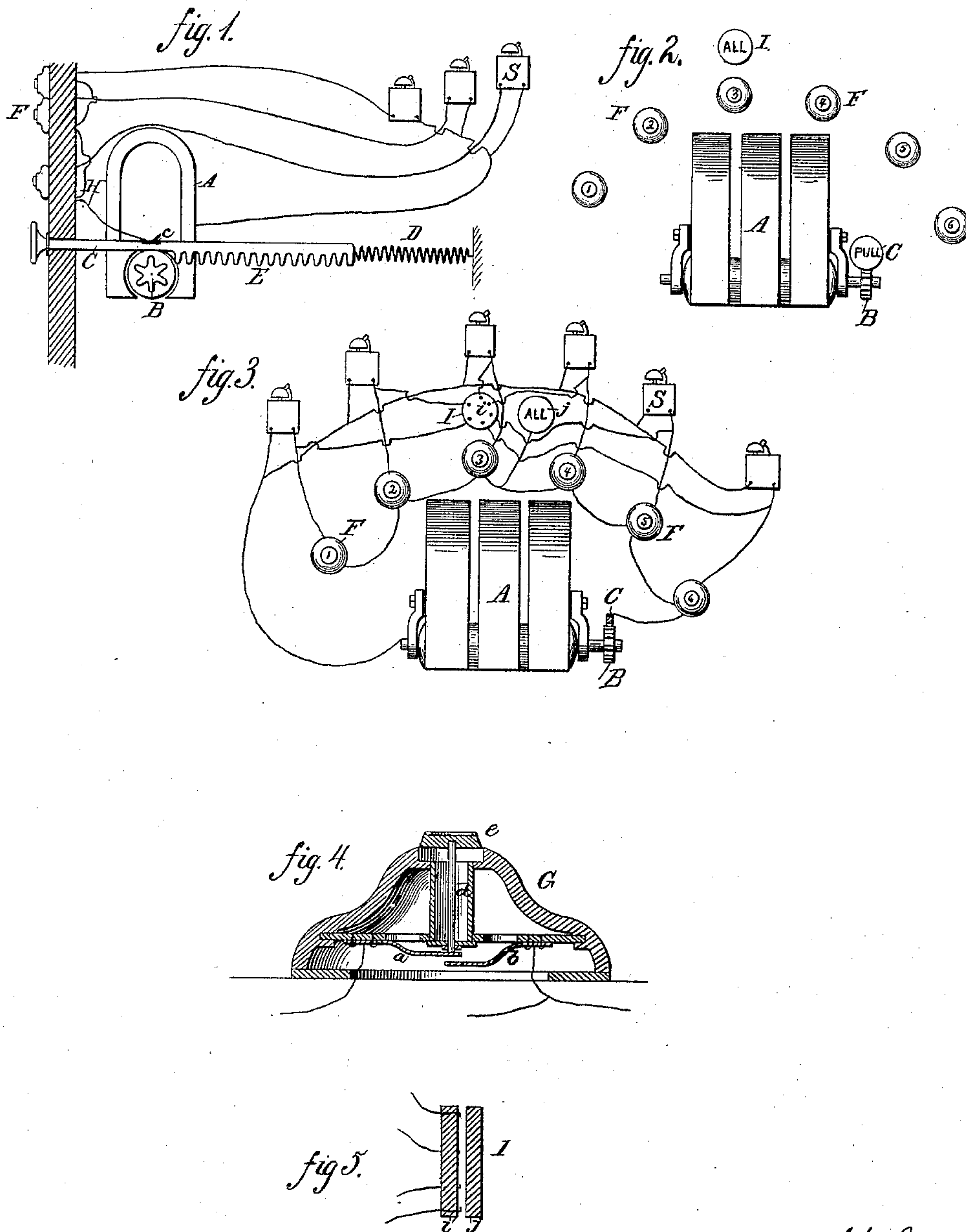
(No Model.)

H. E. WAITE & S. H. BARTLETT.

APPARATUS FOR OPERATING ELECTRIC BELLS.

No. 313,789.

Patented Mar. 10, 1885.



Witnesses:  
John H. Hinkel  
H. E. J. Hansmann.

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# UNITED STATES PATENT OFFICE.

HENRY E. WAITE AND SAMUEL H. BARTLETT, OF NEW YORK, N. Y., AS-  
SIGNORS TO CHARLES F. LIVERMORE, TRUSTEE, OF SAME PLACE.

## APPARATUS FOR OPERATING ELECTRIC BELLS.

SPECIFICATION forming part of Letters Patent No. 313,789, dated March 10, 1885.

Application filed March 31, 1884. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY E. WAITE and SAMUEL H. BARTLETT, citizens of the United States, residing at New York, in the county of New York and State of New York, have in-  
5 vented certain new and useful Improvements in Electric Bells, of which the following is a specification.

Our invention relates to magneto call-sig-  
10 nals wherein a magnetic electric generator is used to generate an electric current for the purpose of ringing bells or operating other signals at distant points; and it consists of a generator adapted to be operated by a door-  
15 pull or other device to produce the current, and a series of connectors or push-buttons, whereby the current may be directed to any desired signal, to the exclusion of the others, and in means whereby all or any number of the  
20 signals may be operated simultaneously. A magneto-electric generator of any ordinary construction, provided with the usual arma-  
25 ture, has upon its armature-shaft a pinion mechanically and electrically connected to the armature-coil. A door-pull or other similar device is placed in proximity to the pinion, and is so constructed that normally it is out of contact therewith; but when it is  
30 operated a series of teeth or a rack thereon will engage with the pinion, thereby operating the generator. A series of push-buttons or other electric connections are arranged around or in convenient relation to the pull,  
35 and the back contacts of all of these buttons are connected in any desired manner to one end of the armature-coil. The front contacts of the buttons or connectors are each connected to one post of an ordinary magneto call-bell or other signal device, the other posts being con-  
40 nected in any desired manner to the opposite end of the armature-coil. From each of the wires leading to the bells or signals a branch is taken, and all the ends of these branches are grouped upon one part of a push-button,  
45 the other part being connected directly with the generator, and upon operating the pull and pressing this button all the bells or signals are in the circuit. Such being the general arrangement of our device, reference is  
50 made to the drawings for a more specific description, in which—

Figure 1 is a side elevation, partly in section. Fig. 2 shows one arrangement of push-buttons and pulls. Fig. 3 is a diagram of the circuits and connections. Figs. 4 and 5 are  
55 detail views.

The generator A has a pinion, B, upon its armature-shaft, preferably mechanically and electrically connected to the armature-coil. The pull-bar C is shown as placed above the  
60 pinion, and is cut away so as not to be in engagement therewith, the spring D holding it so that the rack bar or teeth E on its under side do not engage with the teeth of the pinion; but when it is operated the teeth will  
65 engage therewith and rotate the armature.

The push-buttons F are arranged in any convenient relation to the pull-knob, and have proper designating-characters upon their  
70 faces to indicate the positions of the signals S connected therewith.

Any convenient form of button or connections may be used, those shown consisting of a case, G, of insulating material, having spring-electrodes *a b* connected thereto, so as to be  
75 normally out of contact, and a spindle, *d*, carrying the indicating-head *e*, is adapted to force the electrodes together, so as to produce a slight rubbing action, keeping their surfaces bright and clear. One of the contact-springs  
80 of each of these buttons or connectors is connected to one side of the armature-coil, either directly or by the spring H, bearing upon the pull-bar C, which latter may be provided with an insulating-piece, *c*, to normally break the  
85 circuit at this point when the bar is retracted. The other contact-springs of the buttons are connected directly with their respective bells or signals S, and from these the connection goes to the other side of the armature-coil,  
90 either directly or through ground. From each of the push-button circuits is a branch circuit which leads to the button I, where they terminate in ends projecting above the surface of the disk or plate *i*, and the plate *j*, (shown in  
95 Fig. 3 as removed to one side,) being connected directly to the generator, can be pressed upon the ends of all these branch circuits and operate all the signals at once.

When it is desired to ring any particular bell  
100 or signal, the push-button or connector corresponding thereto is pressed, completing the



connections at that point, and the pull-knob is operated, when the spring H passes off the insulating-piece *c* onto the pull-bar, and the teeth or rack thereon engage with the pinion and the generator is operated, sounding the particular signal, and this signal may be long or short, depending upon the length of stroke of the pull-bar or the number of times it is operated.

10 If for any reason it is desired to operate all the signals at once, the button I is pressed and the pull-knob operated as before.

The number of signals and the arrangement of them will depend upon the use intended for them. If, for instance, the invention is to be used in a house or flat, the separate circuits may lead to the different rooms or floors, and all, or as many as desired, may be connected to the button I to be sounded at once.

20 If desired, the pinion may be connected to the shaft by a clutch, and a balance-wheel may be secured to the shaft, so that the signal will be operated by its momentum, and thereby prolonged after the movement of the pull, and by a series of pulls a continuous operation of the signals may be secured.

We do not limit ourselves to the use of any particular form of connector or signals, as many forms may be used, depending upon the purpose to which the invention is applied.

30 It is evident that the insulating-piece in the pull-bar may be dispensed with, as its use is only to insure the breaking of the circuit if by chance it should be otherwise closed.

35 It will be seen that by this invention we produce a simple, cheap, and durable arrangement of call apparatus, one that is always

ready to operate and not liable to get out of order, while at the same time it is susceptible of many applications.

Having thus described our invention, what we claim is—

1. The combination, with an electric generator and circuit therefrom, of a pull-bar to operate the generator, forming part of the said circuit, having two circuit-breaking points, substantially as described.

2. The combination, with a magneto-electric generator, and means for operating it, of a series of signals, a corresponding series of push-buttons each connected to its proper signal, and another button connected to a number of the signals, the arrangement being such that any one of the signals may be operated, to the exclusion of the others, or all or any number thereof may be operated simultaneously from a single button.

3. The combination, with a magneto-electric generator having a pinion secured to its armature-shaft, of a pull-bar or rack normally out of engagement therewith, a series of push-buttons or circuit-breakers each connected to a signal, and a general push-button connected to all the signals and circuits and connections, substantially as described, whereby there are two breaks in each circuit, as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HENRY E. WAITE.

SAMUEL H. BARTLETT.

Witnesses:

CHARLES SPARMAN,  
WM. H. WOODHULL.