

(No Model.)

E. G. COLEMAN.
ELECTRIC HOUSE BELL.

No. 360,660.

Patented Apr. 5, 1887.

Fig. 1.

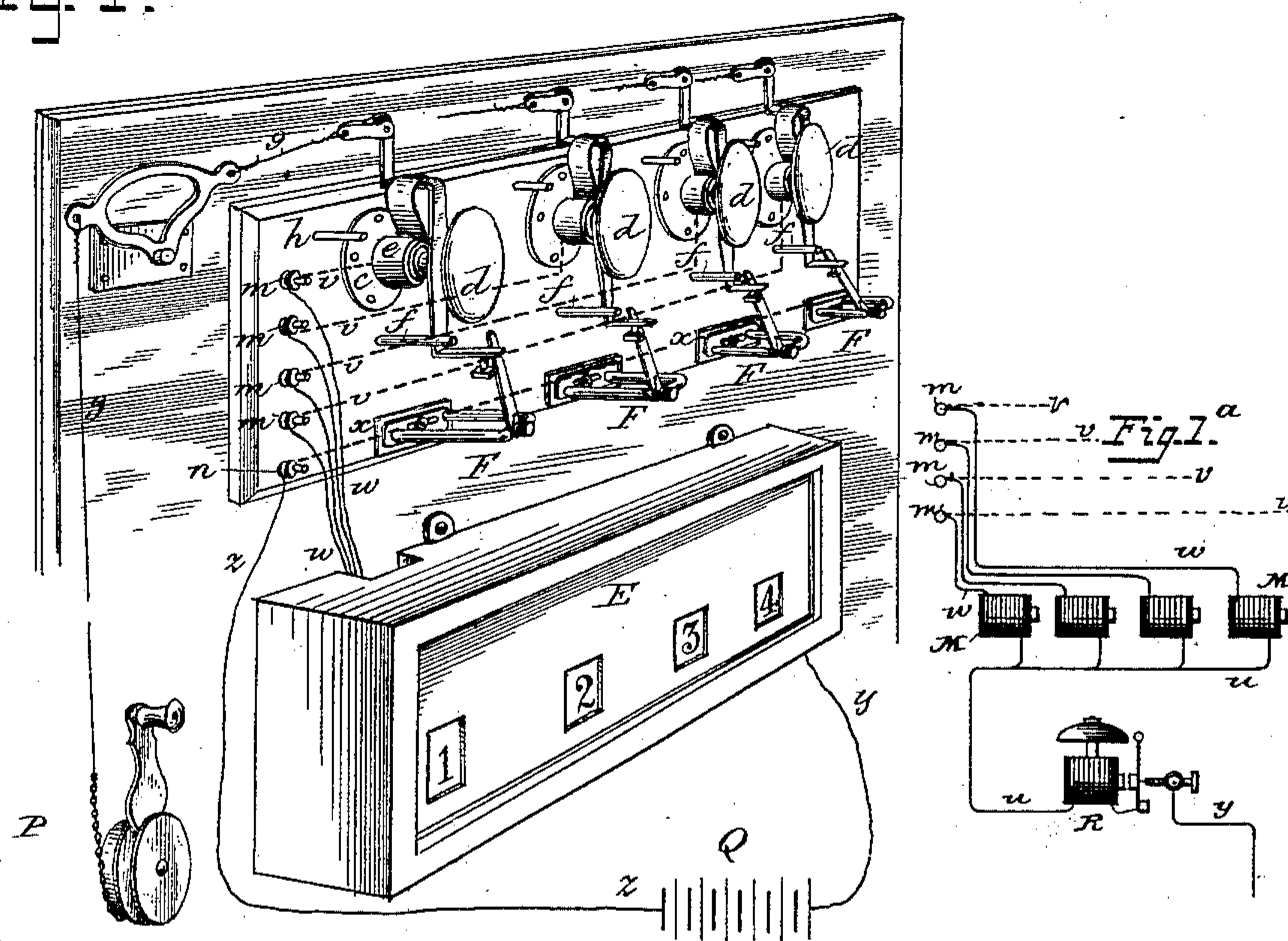


Fig. 2.

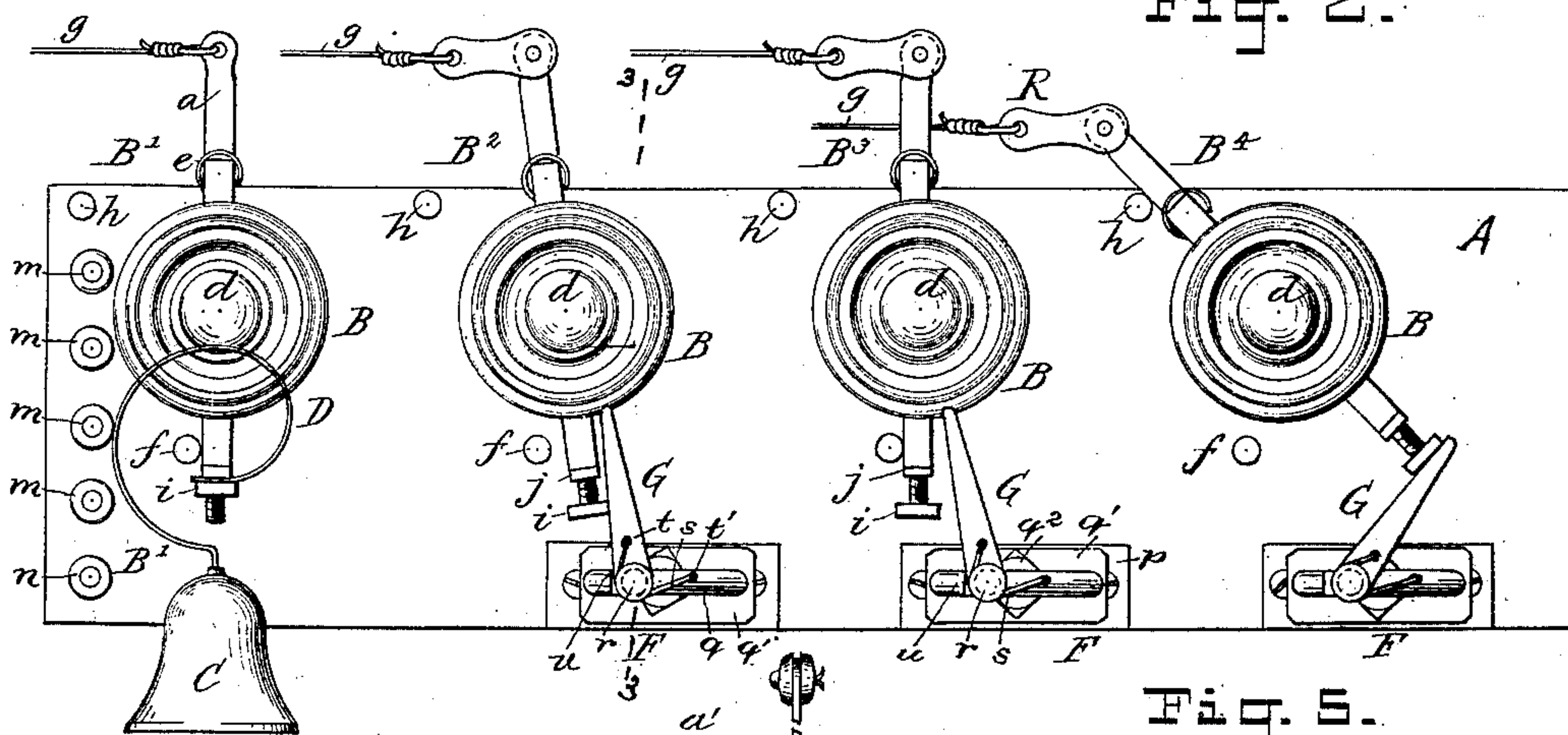


Fig. 4.

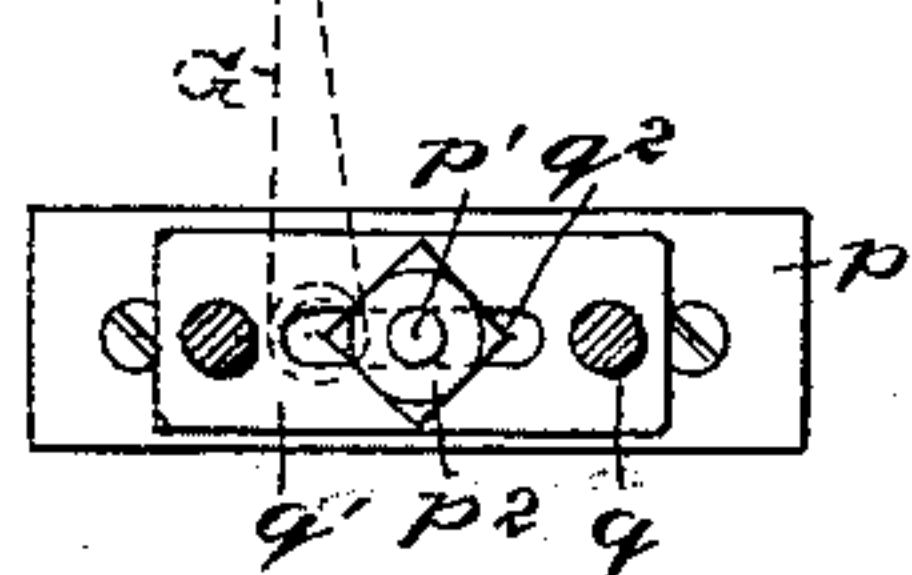


Fig. 5.

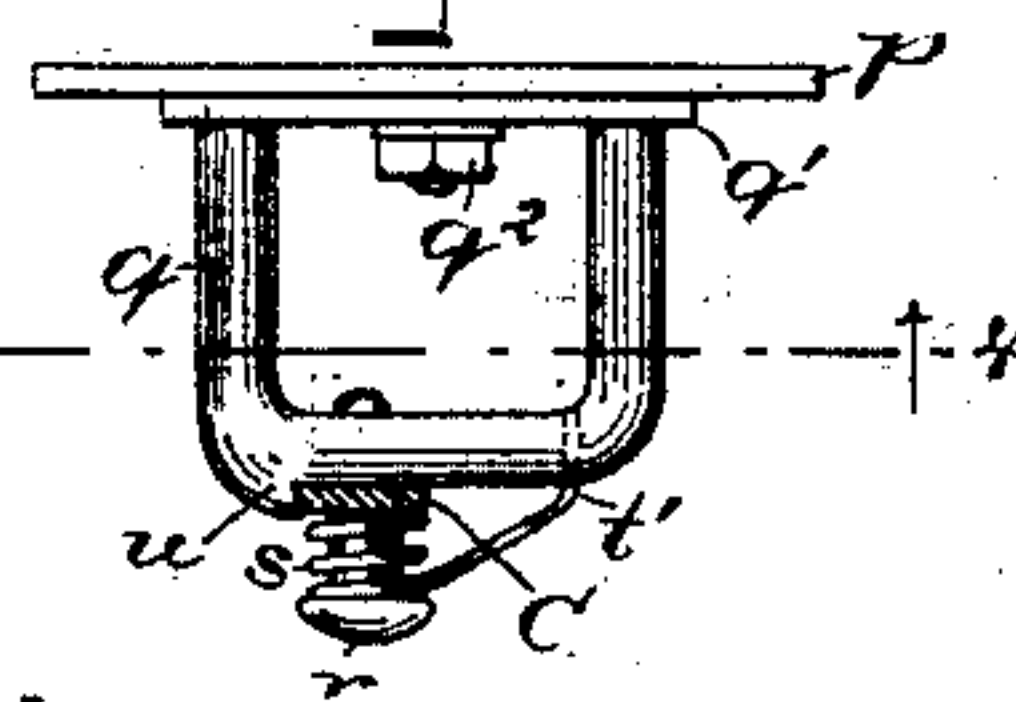
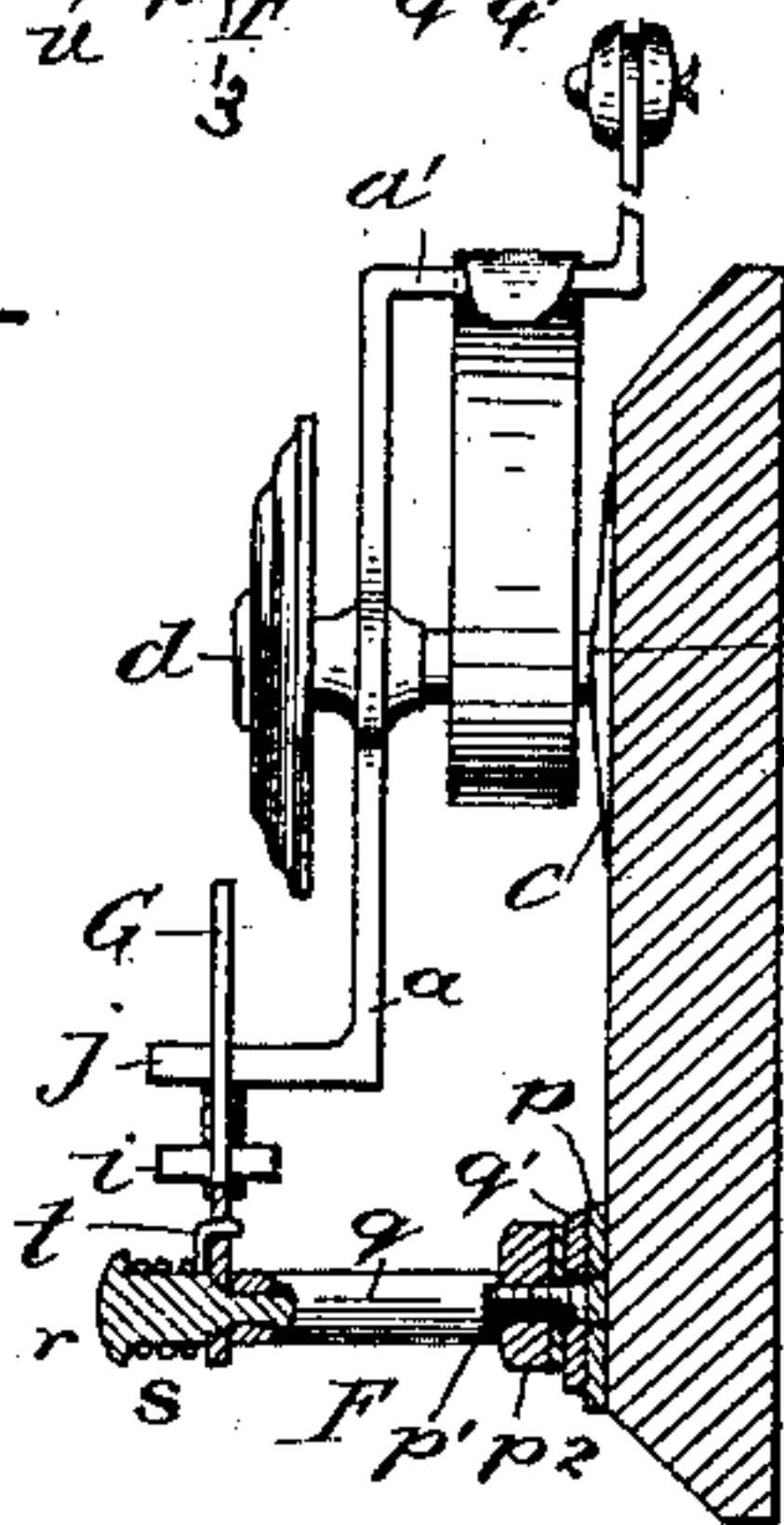


Fig. 3.



WITNESSES:

Arthur Wilson.

Alfred L. Schullz.

INVENTOR:

Edward George Coleman.

By his Attorneys,

Arthur C. Fraser & Co.

UNITED STATES PATENT OFFICE.

EDWARD GEORGE COLEMAN, OF ST. JOHN'S, NEWFOUNDLAND.

ELECTRIC HOUSE-BELL.

SPECIFICATION forming part of Letters Patent No. 360,660, dated April 5, 1887.

Application filed June 26, 1886. Serial No. 206,379. (No model.)

To all whom it may concern:

Be it known that I, EDWARD GEORGE COLEMAN, a British subject, residing at St. John's, in the island of Newfoundland, have invented
5 certain new and useful Improvements in Electric House-Bells, of which the following is a specification.

The object of this invention is to provide a means for converting ordinary house-bells into
10 electric bells in such a way as to utilize the ordinary pulls, pull-wires, and bell-carriages.

Figure 1 of the accompanying drawings is a perspective view of a bell-board which has been altered for the addition of electric bells
15 in accordance with my invention. Fig. 1^a is a diagram of the electric bell and annunciator-magnets. Fig. 2 is a front elevation of a bell-board with its carriages in different conditions. Fig. 3 is a vertical transverse section
20 in the plane of the line 3 3 in Fig. 2. Fig. 4 is a vertical section of one of the contact attachments detached, and Fig. 5 is a plan thereof.

Let A designate the bell-board, and B B the
25 carriages or bell-levers, which are of the construction heretofore used with mechanically-ringing house-bells. The carriage B consists of a bent lever, *a*, pivoted on a stud, *b*, which projects from a plate, *c*, which is fastened to
30 the board by screws, and held in place thereon by a head or disk, *d*, which is screwed onto the end of the stud. A spring, *e*, is coiled around the stud, its inner end being fixed thereto and its outer end being hooked over the horizontal
35 part *a'* of the lever, so that the spring exerts a tension against the lever, drawing it firmly against a fixed pin or stop, *f*. The pull-wire *g* is connected to the upper end of the lever, and when pulled acts against the tension of
40 the spring and draws the lever over, being able to pull it until it strikes the stop *a*.

In the ordinary construction of house-bells, the bell C is mounted on a spring, D, which is fastened to the lower end of the lever *a* by
45 means of a nut, *i*, screwing on a screw formed on the lever, all as shown at B' in Fig. 2, which represents a carriage that has not yet been altered according to my invention.

Having thus described the ordinary construction of house-bells to which my inven-

tion is to be applied, I will now proceed to describe the construction which results from the application of my invention.

Referring to Fig. 1, E designates an electric-bell box and annunciator of any usual or suitable construction. There are as many annunciator-drops as there are different bells or bell-pulls. This box is placed in any convenient position, and connected by wires *w w* to the
60 bell-board.

Fig. 1^a shows the electrical parts within the annunciator-box E. The wires *w w* lead to the respective annunciator-magnets M M, each of which actuates one of the drops. A wire, *u*, leads from all the magnets to a rheotome, R, (or other electric bell,) and from this a wire, *y*, leads out of the box.

The bell-board is fitted up in the following manner: First, the bells C C and their springs D D are removed. Then some contact attachments, F F, the construction of which will be presently described, are fastened to the board—
70 one to each carriage. At the same time the board is fitted with circuit-wires, connecting with the several carriages and contact attachments. As many binding-posts *m m* are fixed to
75 the board as there are carriages, and each is connected by a wire, *v*, (shown in dotted lines,) to its respective carriage. Another binding-post, *n*, is connected by a wire, *x*, (shown by a dotted
80 line,) to the several contact attachments F F. The binding-posts *m m* are connected by the wires *w w* to the annunciator, where the wires go to the respective magnets, as above described, and the single wire *y*, proceeding from
85 the annunciator, extends thence to the battery Q, and from the opposite pole of the battery another wire, *z*, extends to the binding-post *n*. The wires *x*, *z*, *w*, and *y* constitute the undivided portion of the circuit, which is divided
90 by the wires *v w* into as many branches as there are bells. Each of these branches is normally open, being closed when any one of the levers is pulled.

The contact attachment F is shown detached
95 in Figs. 4 and 5. It consists of a yielding contact-arm, G, and its mountings, the arm, when the attachment is in position on the board, being so arranged as to be slightly out of contact with the lever *a*; but when the lever is pulled
100

even a short distance its lower end, *j*, (or the nut *i*,) touches the arm *G*, and if the pulling of the lever be continued it displaces the arm, forcing it back.

5 The contact attachment is constructed as follows: On a base-plate, *q'*, is fixed a standard, *q*, the shape of which is immaterial, but which is shown as of U shape. To this stand-
 10 ard the arm *G* is pivoted by means of a pivot-stud, *r*, as best shown in Fig. 3. The spring, on which the arm *G* is seated, is coiled around this stud, one end being fixed to the arm at *t*, and the other end being fixed to the standard at *t'*. The tension of this spring throws the
 15 arm *G* to the left, against a stop, *u*, which retains it in an upright position. A plate, *p*, is first fastened to the board and has a screw-stud, *p'*, projecting from it. The plate *q'* is placed against this plate, with the stud pro-
 20 jecting through its slot *q''*, and, being moved laterally to the proper place, is fastened by a nut, *p''*, screwing on the stud. The lever *a* forms one terminal of one of the branches of the circuit, and the arm *G* forms the other ter-
 25 minal thereof. When the lever is pulled until it touches the arm, as shown at *B''* in Fig. 2, the circuit is closed between them, and the corresponding annunciator is operated. Only this amount of movement of the lever *a* is nec-
 30 essary to close the circuit; but in most instances the lever will be pulled farther, thereby displacing the arm *G*, as shown at *B'* in Fig. 2, where the lever is pulled completely over, and is stopped by striking the pin *h*. The cir-
 35 cuit will continue closed as long as the lever remains pulled, and will be broken when the lever is released and returns to its position of rest, as shown at *B''* in Fig. 2. The movement of the lever *a* in displacing the arm *G* effects
 40 a sliding contact between them, which keeps the contacting surfaces bright and clean, thus obviating the necessity of coating them with platinum to prevent their oxidation, and hence proportionally cheapening the construction.

45 My invention involves no alteration of the bell-wires *g g* throughout the house nor of the bell-pulls. In Fig. 1 I have shown one wire *g* connected to one of the carriages, and extending from a pull, *P*, which may be located
 50 in any part of the house, as heretofore.

In many cases bells have got out of order by the stretching of the wires or from other cause, so that the lever *a* moves very slightly and not sufficiently to ring a suspended bell,
 55 C. In such instances, when applying my invention, it is not necessary to correct the defect, as a very slight movement of the lever *a*, even as slight as that shown at *B''*, is sufficient to effect the requisite closing of the
 60 circuit and the consequent operation of the electric bell.

In order to prevent any leakage of the electric current through the pull-wires, as might in some cases derange the operation of the
 65 electric bell or annunciator, I insulate each wire *g* from the lever *a*, to which it is connected. This is done by means of an insu-

lator, *R*, of suitable material, which is essentially a link, and which is connected at one end to the lever *a* and at the other to the wire
 70 *g*, as shown.

My invention is not entirely limited in its application to the converting of old bell-carriages; but its essential parts may, if desired, be employed in new constructions.

Any suitable construction of electric annunciator may be employed—such, for instance, as a series of pendulums, one or other of which is caused to swing when the correspond-
 80 ing bell is rung.

My invention, when arranged as described, operates on an open circuit; but it is obvious that this condition might be reversed, so as to operate with a closed circuit without de-
 85 parting from the essential features of my invention. For instance, the contact attachment might be placed on the opposite side of the carriage, so that normally the arm *G* is in contact with the lever *a*; but when the lever is pulled the contact is broken.

I am aware that electric circuit-closing attachments have been operated through the medium of pull-wires, these wires being all connected, through a series of complicated connections in an annunciator, to a single lever, which, when displaced by the pulling of
 95 any one of the pull-wires, presses together two contact-springs and closes the circuit. This device, however, is not adapted to the utilization of the existing system of wires and levers
 100 for mechanically ringing bells in houses, so that the latter can be converted into electric bells by the mere removal of the mechanical bells and the addition of circuit-closing at-
 105 tachments and circuit-wires, which is the distinguishing feature of my invention. The construction referred to could not be applied to the existing house-bells without disconnect-
 110 ing every pull-wire and reconnecting them all to the levers of the annunciator, the labor and expense of which would be nearly if not quite equivalent to rewiring the house with electric circuit-wires throughout.

I claim as my invention—

1. The combination of a bell-board, two or
 115 more bell-levers for ordinary mechanically-ringing bells on said board, two or more pulls and pull-wires connected to said levers re-
 120 spectively, electric contact attachments—one for each lever—arranged on said board in po-
 125 sition to be touched by the respective levers when the latter are pulled, an electric indicator, an electric circuit divided into as many branches as there are pulls, each branch in-
 130 cluding one of the electro-magnets of said indicator and having its opposite terminals in one of said levers and its contact attach-
 135 ment, and an electrically-actuated bell in said circuit, substantially as set forth.

2. The combination, with the usual bell-
 130 board and bell-lever, of a contact attachment consisting of a standard and a spring-seated contact-arm pivoted thereto with a laterally-adjustable attachment for securing said stand-

ard to the board, whereby the arm may be adjusted relatively to the bell-lever, substantially as set forth.

5 3. An electric contact attachment for house-bells, consisting of a standard, a contact-arm pivoted thereto, a spring for pressing said arm forward, and a stop for limiting the forward movement of said arm, combined substantially as set forth.

10 4. An electric contact attachment for house-bells, consisting of a standard, a spring-seated

contact-arm pivoted thereto, a plate, and a slotted connection between said plate and the base-plate of said standard, whereby said plate may be attached to a bell-board and the standard may be adjusted thereon to different positions, combined substantially as set forth. 15

St. John's, Newfoundland, March 29, 1886.

EDWARD GEORGE COLEMAN.

Witnesses:

COLIN CAMPBELL,

ALEX. J. W. McNEILY.