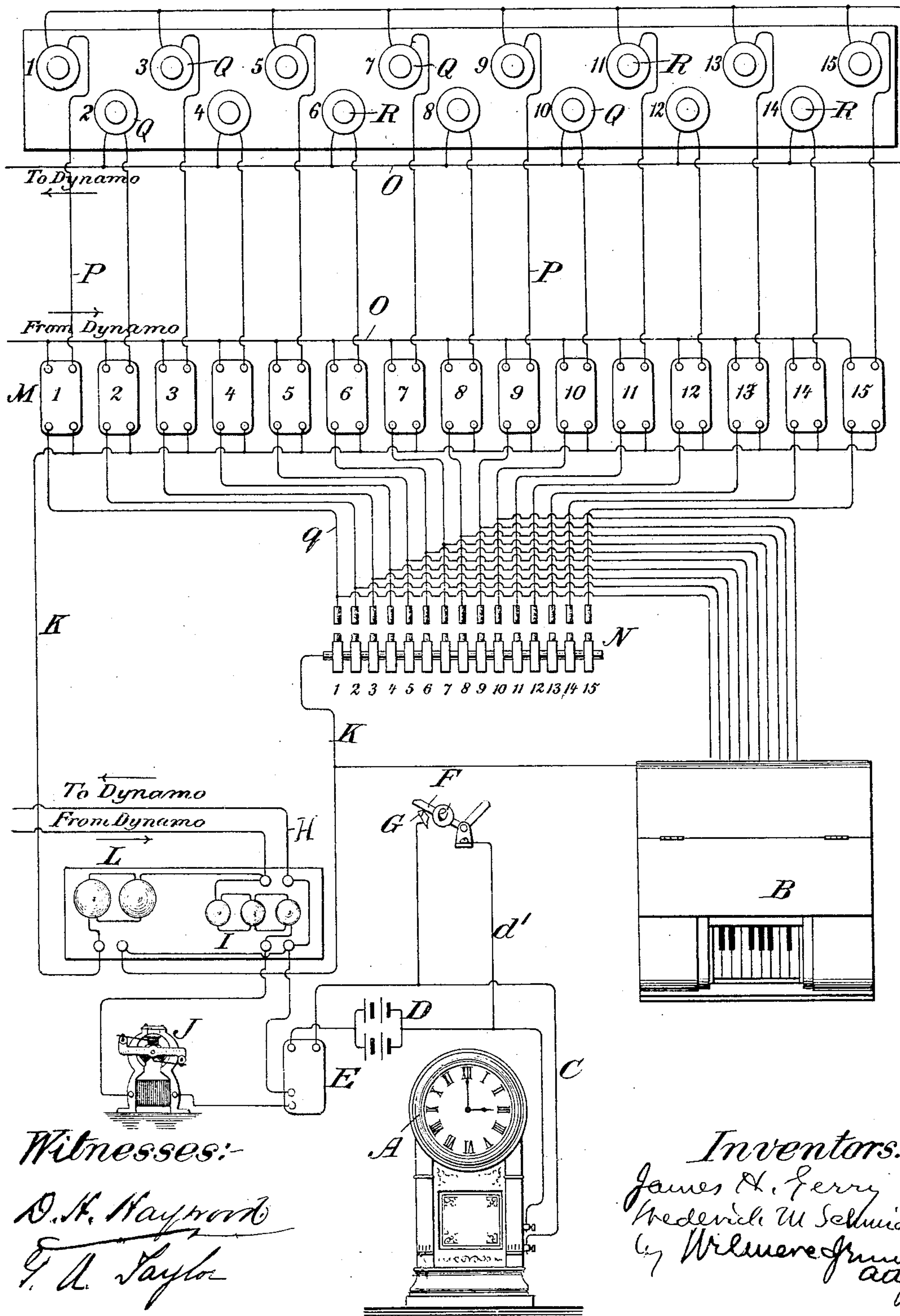


J. H. GERRY & F. M. SCHMIDT.  
ELECTRIC CHIME.

No. 561,881.

Patented June 9, 1896.

*Fig. 1.*



*Witnesses:*

*D. H. Hayward*  
*E. A. Taylor*

*Inventors:*

*James H. Gerry*  
*Fredrick M. Schmidt*  
*by Wilmore Jones atty*

(No Model.)

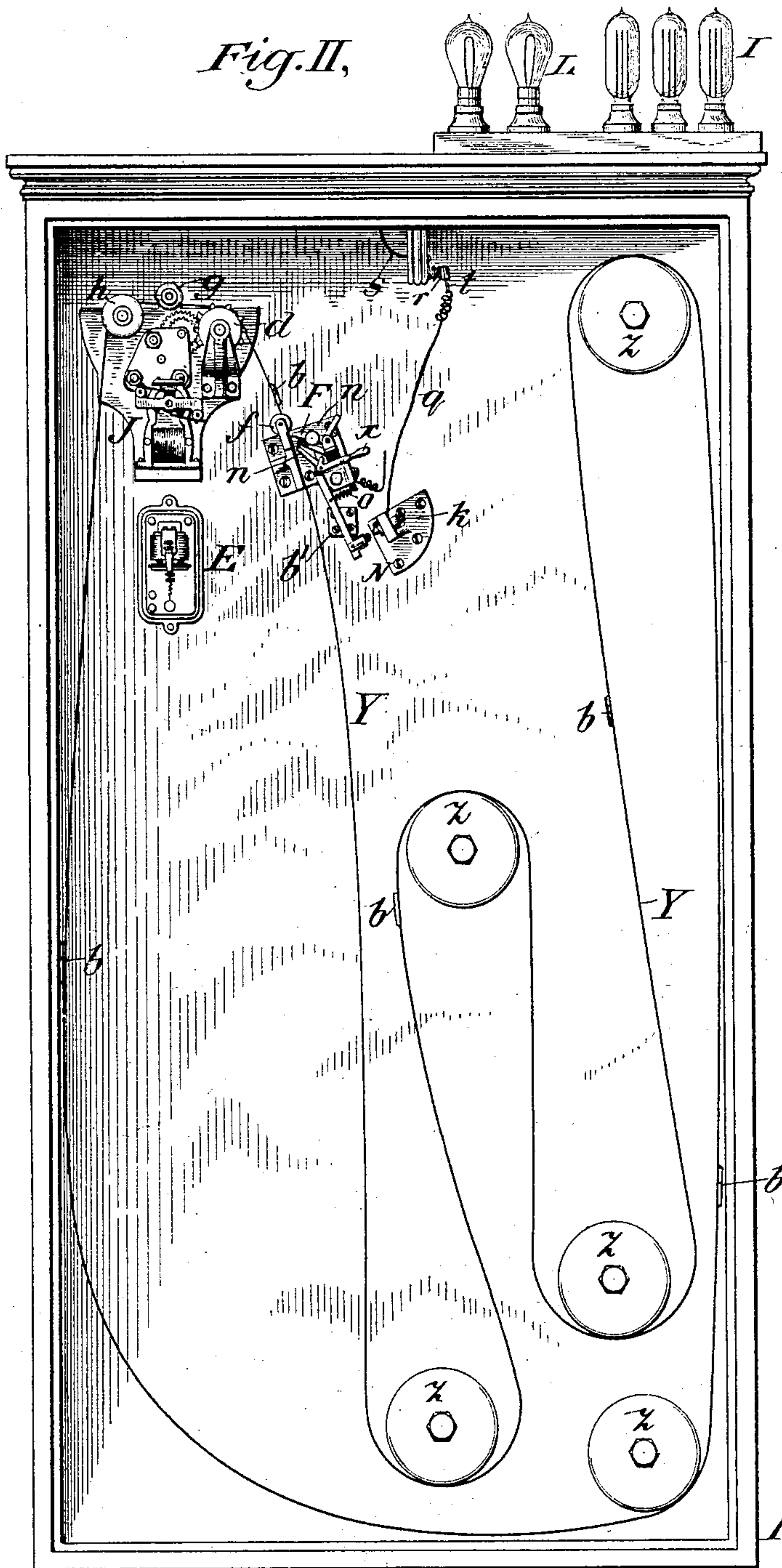
5 Sheets—Sheet 2.

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*Fig. II,*



*Witnesses:-*

*A. H. Raymond*  
*G. A. Taylor*

*Inventors:*

*James H. Gerry*  
*Frederick M. Schmidt*  
*By William J. Smith*

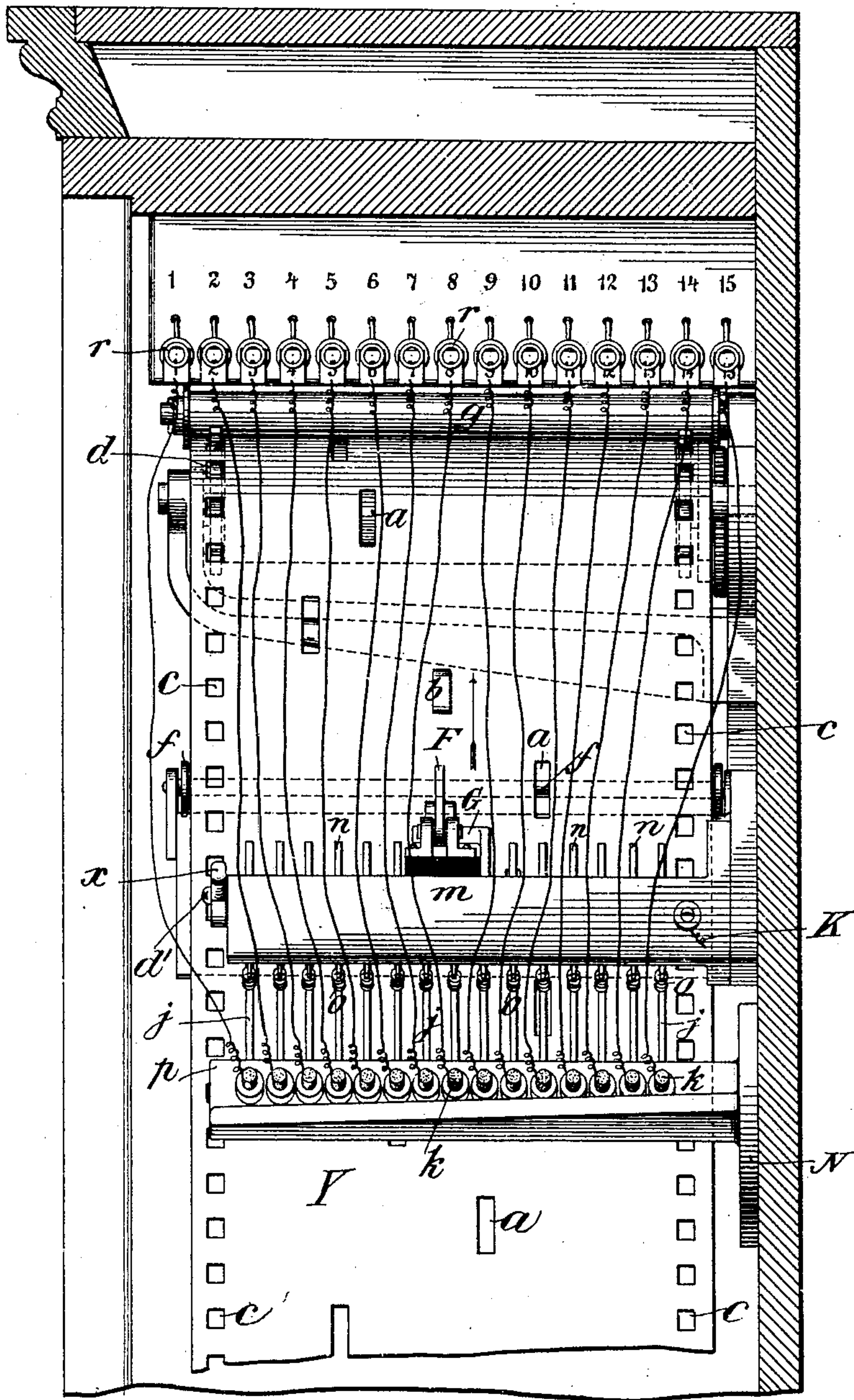


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*Fig. III.*



*Witnesses:*

*D. H. Kaymond*  
*G. A. Taylor*

*Inventors:*

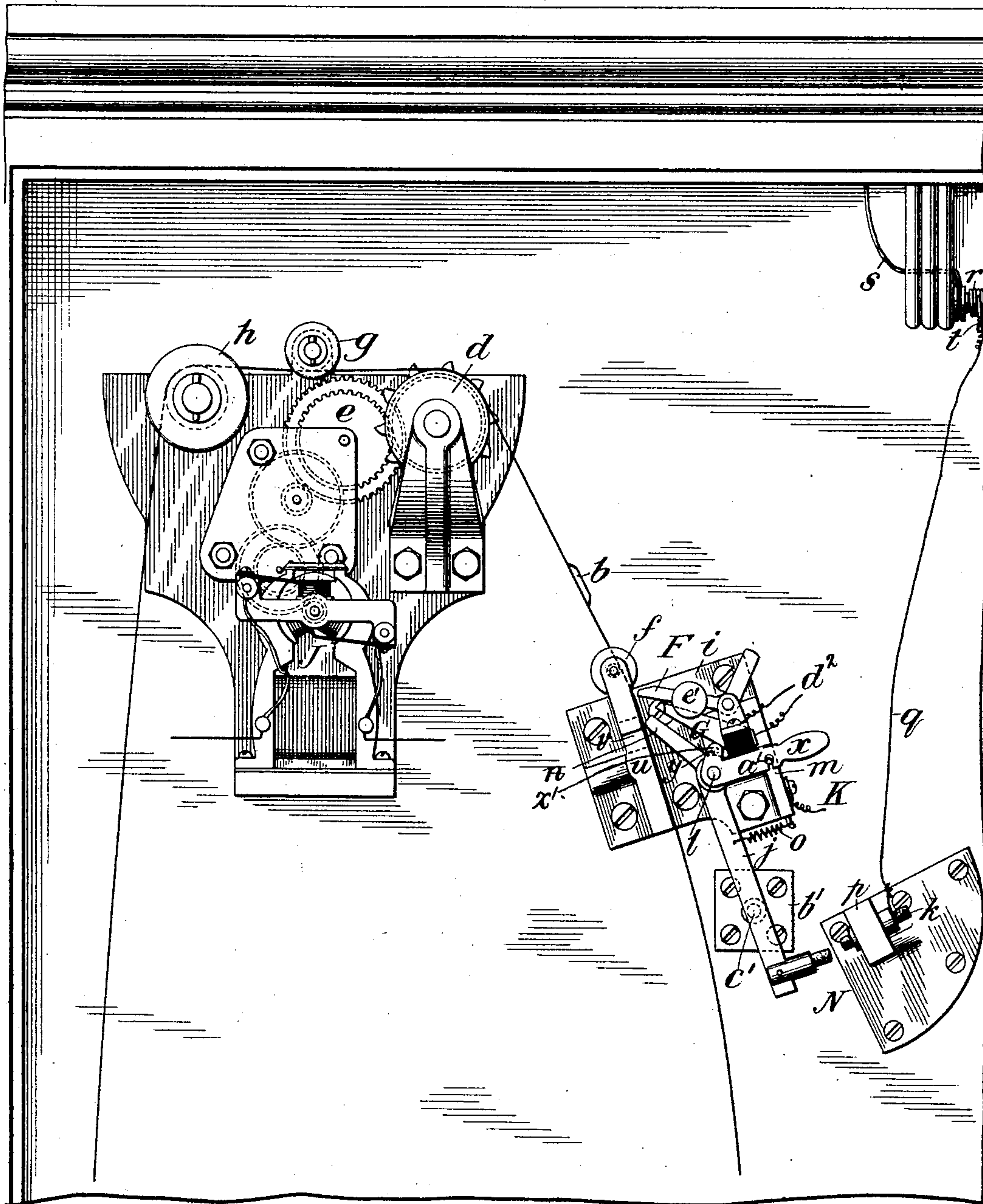
*James N. Gerry*  
*Fredrick M. Schmidt*  
*By Melvina J. Gerry*  
*Attys.*

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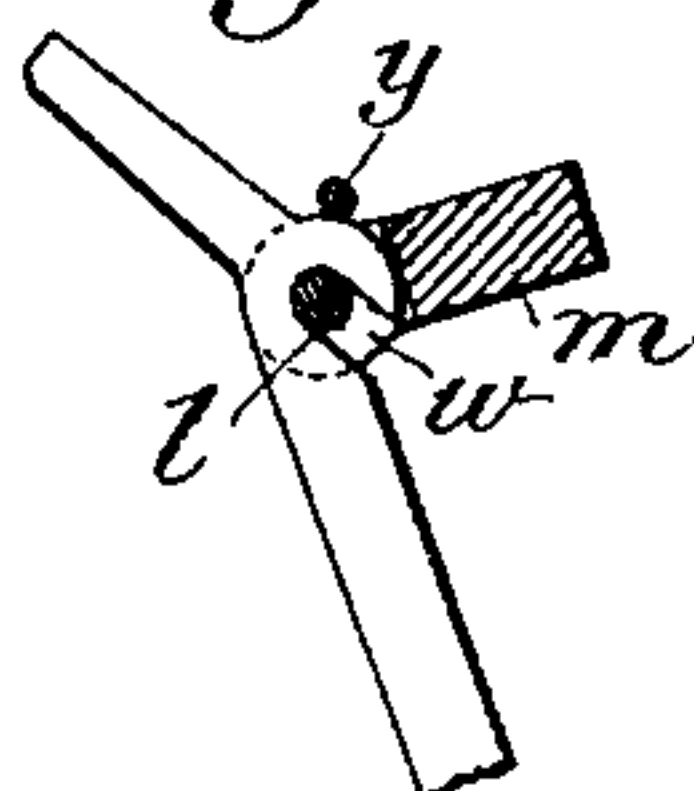
*Fig. IV,*



*Witnesses:*

*D. H. Hayworth*  
*G. A. Taylor*

*Fig. VI,*



*Inventors:*

*James H. Gerry*  
*Fredrick W. Schmidt*  
*by Melvin J. J. J.*

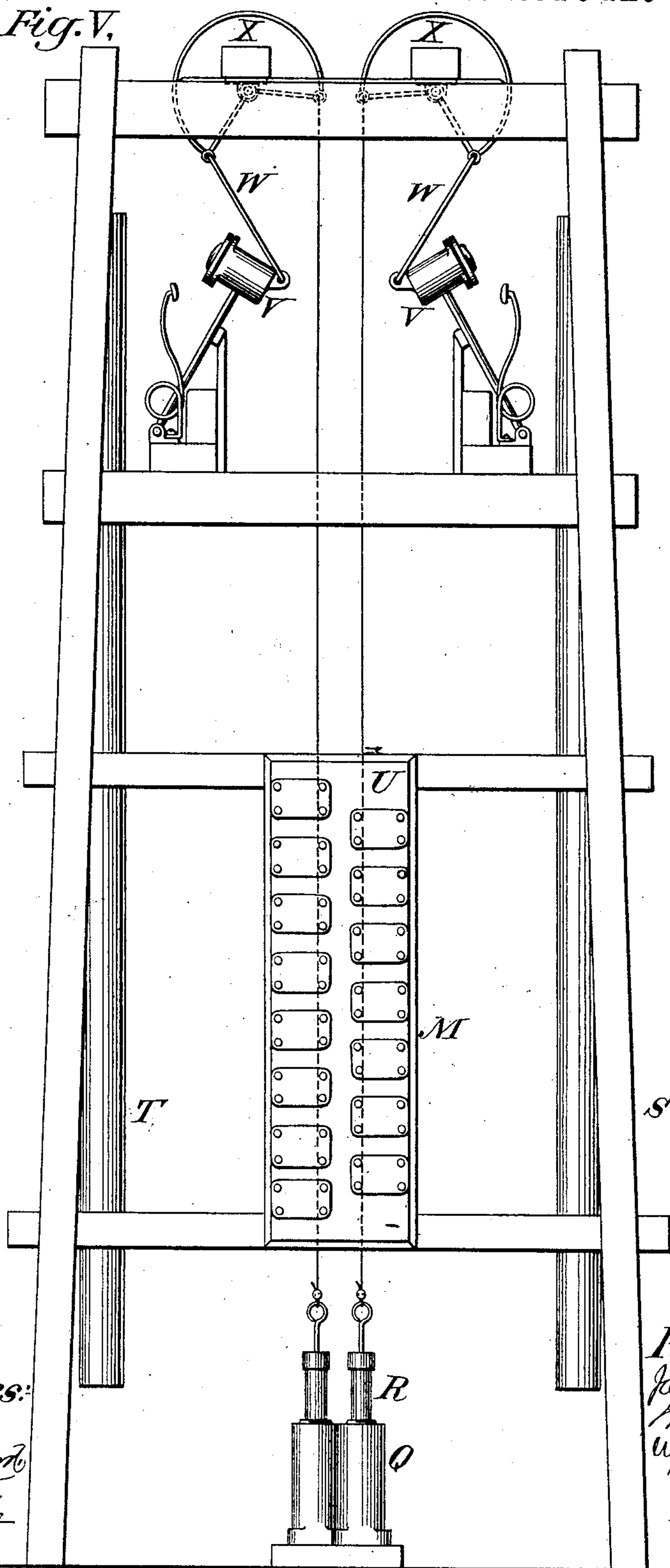


J. H. GERRY & F. M. SCHMIDT.  
ELECTRIC CHIME.

No. 561,881.

Patented June 9, 1896.

*Fig. V.*



*Witnesses:*

*R. H. Raymond*  
*G. A. Taylor*

*Inventors:*

*James H. Gerry*  
*Fredrick M. Schmidt*  
*by Melvin J. Gray*

# UNITED STATES PATENT OFFICE.

JAMES H. GERRY AND FREDERICK M. SCHMIDT, OF BROOKLYN, NEW YORK,  
ASSIGNORS TO THE SELF WINDING CLOCK COMPANY, OF NEW YORK, N. Y.

## ELECTRIC CHIME.

SPECIFICATION forming part of Letters Patent No. 561,881, dated June 9, 1896.

Application filed March 18, 1895. Serial No. 542,228. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES H. GERRY and FREDERICK M. SCHMIDT, citizens of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Electric Chimes, of which the following is a specification.

Our invention relates to the ringing of chimes electrically under control of a clock if the chimes are to be rung periodically or of a keyboard if they are to be sounded at will.

Our invention consists specifically in certain combinations of devices and circuits which we will first fully describe with reference to the accompanying drawings, then pointing out in the claims the novel parts.

In said drawings, Figure I is a general diagrammatic view of the system. Fig. II is a front elevation of the mechanism for operating the music-strip for use when it is desired to sound a prearranged series of notes. Fig. III is a sectional elevation of the upper part thereof to a much larger scale. Fig. IV is a front elevation of the upper part thereof to the same scale as Fig. III. Fig. V is an elevation of the chimes and allied parts. Fig. VI is a detail view of a contact-lever and its support.

The chimes may either be rung automatically at predetermined intervals under control of a clock A or at will by operating a keyboard B.

C is the conductor of a local circuit including a battery D and the magnets of a relay E. The clock A has usual circuit-closing devices, which we have not thought it important to show, as they may be of any preferred kind, for closing the local circuit momentarily at predetermined intervals. The circuit once closed current flow is maintained by means of the circuit-closer F G, in the manner hereinafter explained. Current is supplied over conductor H from a suitable source of electricity (not shown) through resistance I to a motor J, and a branch K of the same circuit is led through a lower resistance L, then in multiple arc through the magnets of relays M, numbered 1 to 15, and the correspondingly-numbered series of contact-makers N. A line conductor O, which includes a suitable source of electricity (not shown) has in mul-

multiple are a number of branches P, each of which passes through the contacts of one of the relays M and around the coil of a corresponding solenoid Q. Each solenoid has a movable core R. The solenoids are (see Fig. V) arranged in double row at the base of a frame S, in which are supported two rows of tubular chimes T. In Fig. V only the end chimes of the two rows appear, the frame being seen end on. The board U, carrying the several relays M, may also be supported on frame S, as shown.

V are the hammers pivoted on suitable supports on frame S and connected by rods W or otherwise with rockers X, each of which is connected by cord, cable, or otherwise to one of the solenoid-cores R.

The music sheet or band Y is carried (see Fig. II) on a number of supporting, guiding, and balancing rollers Z. The sheet is perforated, as shown in Fig. III, the perforations or slots *a* being so proportioned and arranged as to coact with the contact-makers N in sending to line a series of impulses corresponding to the tune to be played.

At the end of each series of perforations or "tune" on the music strip or ribbon is arranged a boss or short rounded elevation *b*, which acts upon contact-maker F G to stop the mechanism at the end of a tune. The music-strip has regular perforations *c* at the edges to engage the sprocket-teeth of a feed-wheel *d*, which is driven by train of gears *e* from motor J. The music-sheet is (see Fig. IV) guided to and from the feed-wheel *d* by flanged rollers *f g h*, the first of which may, as shown, be mounted upon the bracket *i*, which carries the levers *j* of contact-makers N and F G, and serve, therefore, to guide the sheet in passing said contact-makers. The contacts N consist of a series of movable or lever contacts *j*, pivoted opposite a series of fixed contacts *k*. The levers are mounted on a common pivot-rod *l*, mounted in bracket *m*, to which is connected one part of conductor K. Above their pivot *l* the levers *j* have arms *n*, which are caused to bear upon the music-sheet Y by springs *o*, fixed at one end to levers *j* and at the other to a fixed support.

The contact-points of levers *j* are remote from the points of contact of arms *n* with the



music-ribbon in order to get the spark of making and breaking the circuit away from the sheet, and the music sheet or band Y must be out of or excluded from the electric circuits by making it of some non-conducting material, such as paper, parchment, cloth, &c., or by otherwise insulating or rendering neutral the end of lever *j*, contacting therewith to insure sending the electric impulses through the proper circuits.

The several fixed contacts *k* are insulated from each other in their support *p* and connected by independent wires *q* to a series of insulated posts *r*, and thence by wires *s* to the magnets of the several relays M. Preferably the posts *r* are spiral springs, which afford good clamping-surfaces for flat terminal plates *t* of wires *q*, so that the latter may be readily put in place or removed.

The music-sheet is supported against the pressure of the arms *n* by a flat plate or table *u*, carried by bracket *i*, and immediately opposite the ends of said arms at *v* the table *u* is slotted, so that when a slot *a* of the music-sheet passes under an arm *n* said arm, dropping through said slot *a*, will be allowed by slot *v* to move far enough to bring contacts N together and thus complete the circuit through the corresponding relay M. The levers *j* are hung on their pivot-shaft *l* by slots *w* at their hubs and are held together by a finger-lever *x*, pivoted on the outer end of shaft *l*. The levers *j* are held down on the shaft by a pin *y*, which rests just above their hubs, and is retained in its socket in the supporting-bracket *m* by a short arm *x'* on finger-lever *x*. By lifting lever *x* from engagement with screw *a'* its arm *x'* releases pin *y*, so that the latter may be removed and any one or all of the contact-levers *j* may be removed at will.

At *b'* we provide a metal plate having a socket *c'* adapted to receive a pin. By pressing back the levers *j* and inserting a pin in said socket the levers may all be held back from possibility of contact with contacts *k*.

It will be seen in Fig. I that a branch circuit *d'*, including contacts F G, is arranged to short-circuit the clock A. The contacts F G are mounted on bracket *i* and insulated therefrom and from each other. The contact F is pivoted to its support and provided with weight *e'*, and the contact G is rigid. Normally during the operation of the mechanism the contact F rests on contact G, closing the circuit; but when at the end of the performance of a musical selection the boss *b* passes under the contact F the latter is raised from contact G, the circuit broken, and the mechanism ceases to operate.

The operation is as follows: The closing of circuit C by clock A (the contacts F being separated) causes the closing of circuit H at relay E, and the motor J is thus started and starts the music-sheet in movement. The closing of circuit by the clock is but momentary, but long enough to cause the movement

of the music-sheet to carry the boss *b*, which is at the moment under contact F, away from such contact, allowing the latter to drop and short-circuit the clock, insuring the maintenance of the circuit until the musical selection is completed. The music-sheet is thus drawn continuously past the arms *n* of contact-levers *j*, causing the latter to close the circuits *q* at N, and thus operate the relays *m*, so as to actuate successively the proper solenoid-cores R to produce the music desired. When the selection is completed, the boss *b* lifts contact F and breaks the circuit *d'* C, and consequently also the circuit H, thus stopping the motor J and arresting the movement of the music-sheet while the contact F is still held up by boss *b*.

If it is desired to ring the chimes at other than the prearranged times or to perform other selections than those provided for on the music sheet or ribbon, the keyboard B is provided and is so arranged that each key closes one of the circuits into one of the conductors *q* in manner similar to the automatically-operated contact-closers N.

Having thus described our invention, the following is what we claim and desire to secure by Letters Patent:

1. In electric chimes the combination of the set of chimes and hammers therefor, the solenoids and their cores corresponding to the several hammers, the several relays having their contacts in circuit each in series with one of said solenoids and in multiple arc with the remainder, and its magnets in series with one of a set of circuit-closing devices and means for operating said circuit-closing devices substantially as set forth.

2. In electric chimes, the combination of a set of chimes T, their hammers V, solenoid-cores R, electric circuit O including solenoids Q in multiple arc and the contacts of relays M, the electric circuit K, *q* including the magnets of said relays in multiple arc and their corresponding contact-makers N, and means for operating said contacts substantially as set forth.

3. In electric chimes the combination of a local circuit C including a source of electricity, a relay-magnet and a clock-operated circuit maker and breaker, a branch circuit *d'* including circuit-maker F, G, contact-makers N, a circuit including motor J and a music sheet or ribbon operated by said motor and having means, such as bosses *b*, for operating contact F, substantially as set forth.

4. The combination of the series of contact-levers *j* having slots *w*, their pivot pin or shaft *l*, retaining-pin *y*, and finger-lever *x* having arm *x'* all arranged and adapted to operate substantially as set forth.

JAMES H. GERRY.  
FREDERICK M. SCHMIDT.

Witnesses:

HENRY OPDYKE,  
R. EMMET DOHERTY.