

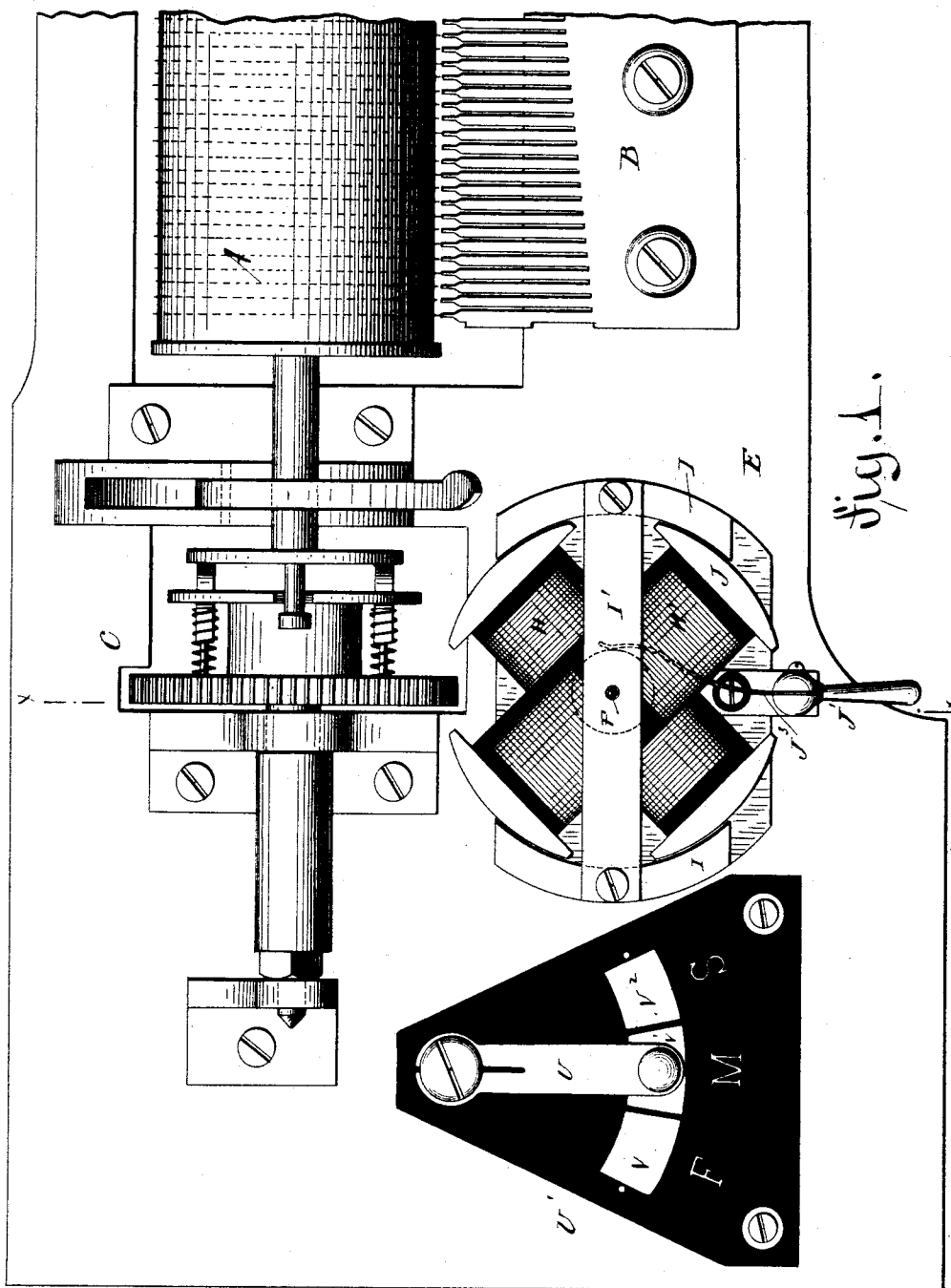
(No Model.)

3 Sheets—Sheet 1.

C. A. HUSSEY.
ELECTRIC MUSIC BOX.

No. 446,684.

Patented Feb. 17, 1891.



WITNESSES:

J. H. Rosenbaum..
Paul Kemp

INVENTOR

Charles A. Hussey
BY *George F. Rogers*
ATTORNEYS.

C. A. HUSSEY.
ELECTRIC MUSIC BOX.

No. 446,684.

Patented Feb. 17, 1891.

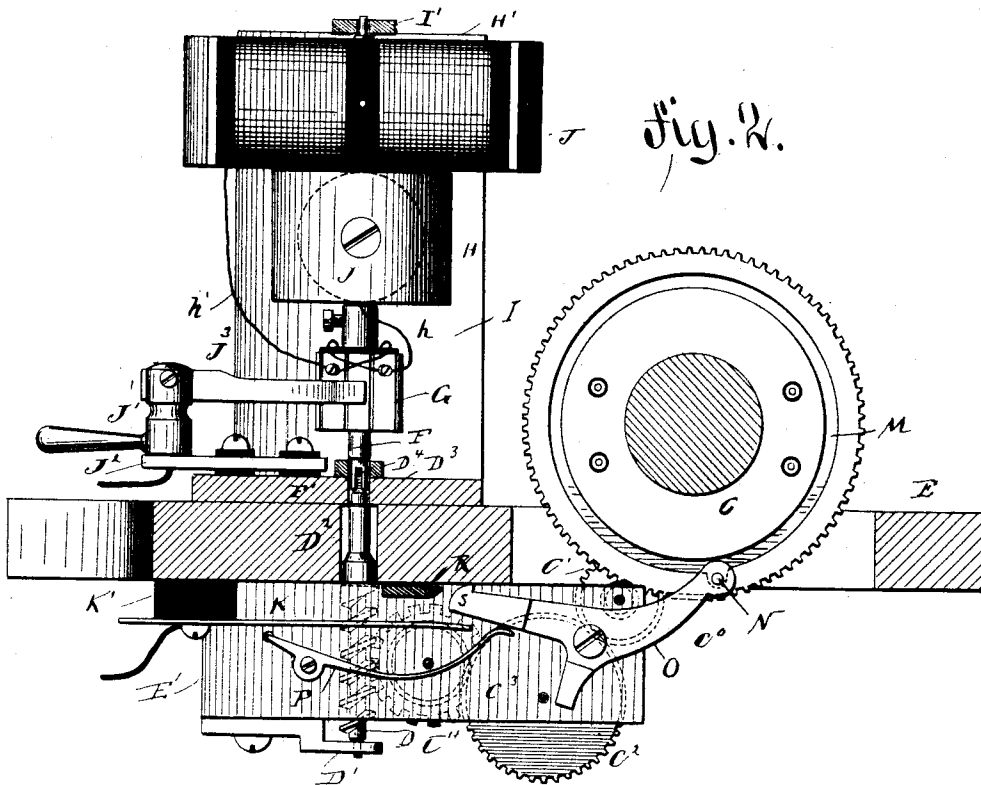


Fig. 3.

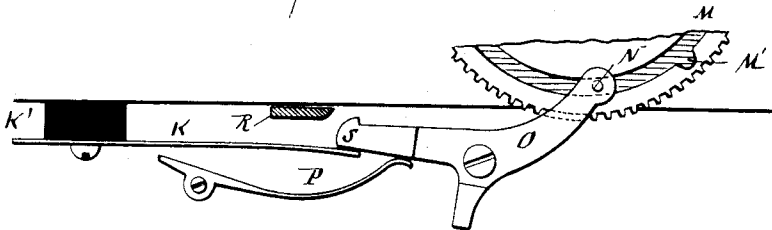
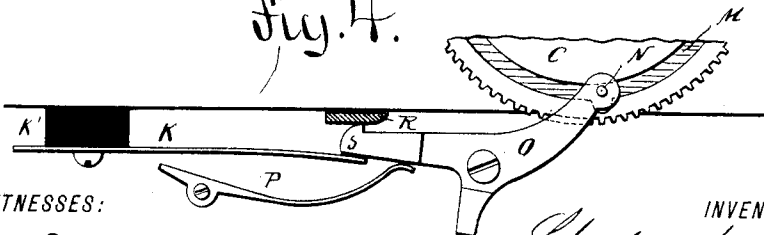


Fig. 4.



WITNESSES:

For W. Rosenbaum.
Carl Kay

INVENTOR,

Charles A. Hussey
BY *Loquax & Co.*
ATTORNEYS.

C. A. HUSSEY.
ELECTRIC MUSIC BOX.

No. 446,684.

Patented Feb. 17, 1891.

Fig. 5.

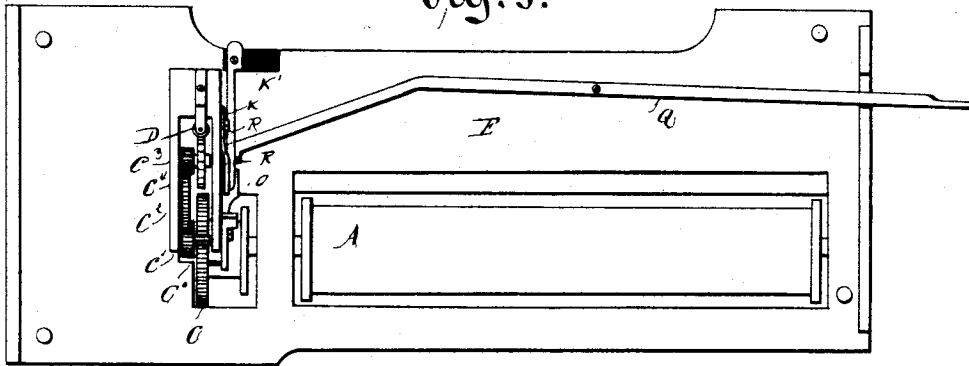
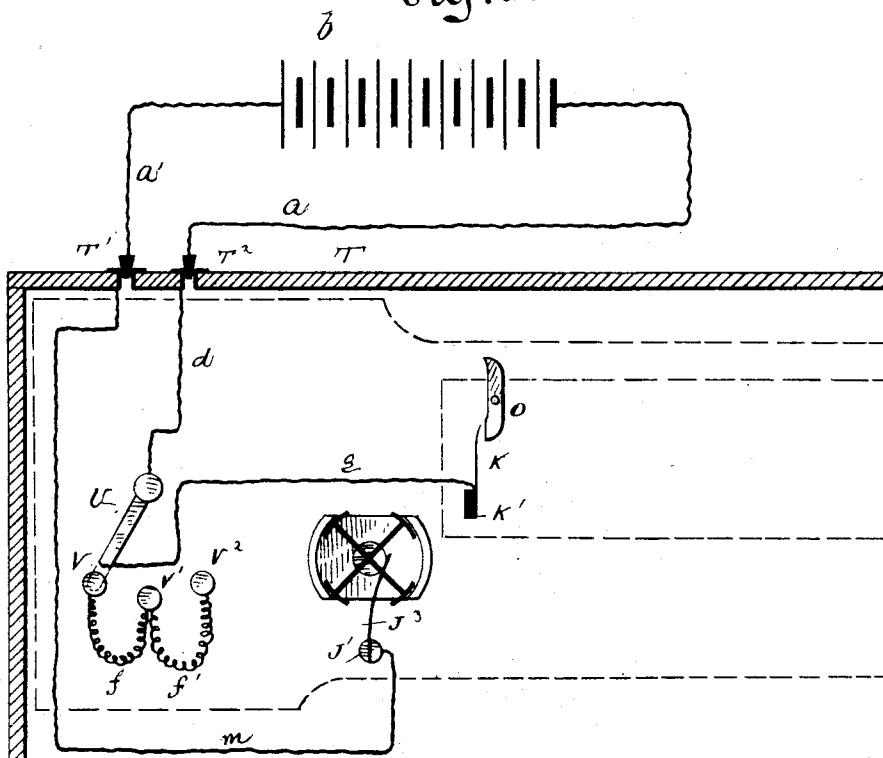


Fig. 6.



WITNESSES:

J. N. Rosenbaum.
Carl Kay

INVENTOR

Charles A. Hussey
BY
Forbes & Ruggener
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES A. HUSSEY, OF NEW YORK, N. Y., ASSIGNOR TO M. J. PAILLARD
& CO., OF SAME PLACE.

ELECTRIC MUSIC-BOX.

SPECIFICATION forming part of Letters Patent No. 446,684, dated February 17, 1891.

Application filed December 29, 1888. Renewed November 25, 1890. Serial No. 372,579. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. HUSSEY, of the city, county, and State of New York, a citizen of the United States, have invented certain new and useful Improvements in Electric Music-Boxes, of which the following is a specification.

This invention relates to improvements in music-boxes having a comb and a pin-cylinder for vibrating the teeth of the comb.

The object of my invention is to provide an electric motor for rotating the cylinder and a contrivance for breaking the circuit at the end of the tune when desired.

The invention consists in the construction and combination of parts and details, as will be fully described hereinafter, and finally be pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of part of my improved electric music-box. Fig. 2 is a vertical transverse sectional view of the same on line *xx*, Fig. 1. Figs. 3 and 4 are detail sectional views showing the parts of the circuit breaking and closing devices in different positions. Fig. 5 is a plan view of the under side of the plate on which the mechanism is fastened. Fig. 6 is a diagram view showing the electrical connections.

Similar letters of reference indicate corresponding parts.

The cylinder A, having the usual pins for vibrating the teeth of the comb B, is driven by the cog-wheel C, engaging a pinion *c*⁰, made integral with the cog-wheel C', which in turn is driven by a cog-wheel C², engaging the cog-wheel C³ on the same shaft with the worm-shaft C⁴, engaging the worm D, passing through an aperture in the base-plate E and having its lower end mounted in a bridge D', fastened to a plate E', projecting from the under side of the base-plate. The spindle D² of the worm D is provided at its upper end with a shoulder D³, upon which the lower end of the spindle F can rest, the lower end of said spindle being made tubular, so as to receive that part of the spindle D² projecting above the shoulder D³. Said part of the spindle D² is provided with a transverse pin D⁴, which passes into two opposite longitudinal slits or

notches F' in the lower tubular end of the spindle F, so that the spindle D² can be carried along and rotated by the spindle F. On the spindle F is mounted the commutator G and the two electro-magnets H H', which are arranged at right angles and are provided on their ends with pole-pieces J, the outer faces of which are segmental, so as to adapt said magnets to rotate between the two segmental upright plates *l*, forming a fixed armature, and which are fastened on the base-plate and united at their upper ends by a cross-piece *l'*, in which the upper end of the spindle F is mounted to rotate. The two electro-magnets H H' are connected with the sections of the commutator by wires *h h'*, as shown in Fig. 2. A brush J³ is secured to a lever J', pivoted on a bracket J², which is insulated from the base-plate E. The contact-spring K is secured to the insulated piece K' on the under side of the base-plate, as shown in Fig. 2. The wheel C is provided in one face with a circular groove M, having a notch M', in which groove a pin N can travel that projects from the end of a lever O, pivoted below the base-plate, and on the opposite end of said lever a spring P acts, which presses said opposite end upward, thereby pressing the pin N against the outer circumference of the groove M.

A lever Q is pivoted on the under side of the base-plate and projects from one end of the same to permit of manipulating it by means of the usual hand-levers provided on music-boxes, and on the opposite end of said lever Q a cam R is fastened, which can act on the cam end S of the lever O and press the same downward.

The box T of the music-box is provided on each side with two tubular nipples T' T², into which tips on the end of the flexible cords *a* and *a'* can be inserted, said cords being connected with a battery *b* or other source of electricity. The nipple T² is connected by a wire *d* with one end of a switch-lever U, pivoted on an ebonite plate U' on the top of the base-plate E. Said lever can slide over three metallic buttons V V' V² on the ebonite plate U', which buttons V V' V² are connected by German-silver or other resistance-wires *f f'*. The switch-button V is connected by a wire

g with one end of the spring K. The brush-lever J' is connected by a wire m with the nipple T'.

The operation is as follows: When the circuit is closed, the magnets H H' are rotated and rotate the spindle F, which rotates the worm-spindle D², from which by means of the worm-wheel and cog-wheels motion is transmitted to the cog-wheel C, and the same rotates the pin-cylinder A. Said pin-cylinder A continues to rotate until the circuit is broken. When the cam R is in the position shown in Fig. 3 and the pin N is not opposite the notch M', the cam end S of the lever O is lowered and pressed against the free end of the spring K, whereby the circuit is closed, said circuit being as follows: From the battery through the wire a' to the nipple T', the brush-lever J', the brush J³, the commutator G, the two magnets H H', the armature-plates l, the base-plate E, the lever O, the spring K, the wire g, the switch-block V, the switch-lever U, the wire d, the nipple T², the wire a, back to the battery b. As soon as the pin N arrives at the notch M' it snaps into the same under the action of the spring P, and thus contact between the cam end S of the lever O and the spring K is broken, and thereby the circuit is broken, thus causing a stoppage of the machine. When it is desired to start the machine, the lever Q is moved in such a manner as to force the cam R against the cam end S of the lever O, whereby said cam end S will be depressed and brought into the position shown in Fig. 4. The circuit is thus completed through the cam end S and the contact-spring K, the electro-motor is put in operation, and the cylinder rotated.

When it is desired that the playing mechanism shall stop at the next tune—that is, at the time when the pin N next arrives at the notch M'—the lever Q is moved so as to bring the cam R from the position shown in Fig. 4 into the position shown in Figs. 2 and 3, so that when the pin N arrives at said notch M' it can snap into the same and thus the opposite end of the lever O raised and the circuit broken between the cam-lever O and the contact-spring K.

For some tunes it is desirable to have the cylinder rotate at a greater or less speed than for other tunes, and for this reason the switch has been provided. In case the pin-cylinder is to rotate rapidly the swinging end of the switch-lever U is brought in contact with the switch-block V, so that none of the current passes through the resistance-wires f f'. In

case less speed is desired the switch-lever is moved so as to bring its end in contact with the switch-block V', so that the current will be compelled to pass through the resistance-wire F. In case it is desired to have the pin-cylinder rotate still more slowly the lever U is brought in contact with the switch-block V², so that the current will be compelled to pass through the resistance-wires f and f'.

The motor can be lifted off and removed without disconnecting any wires whatever, as the motor simply rests upon the worm-spindle, and motion is transmitted from the motor-spindle to the worm-spindle by the pin D⁴.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a music-box comb and a pin-cylinder, of an electromotor for rotating the pin-cylinder, a lever controlled by one of the moving parts of the music-box mechanism and serving to operate a circuit breaker or closer, and a cam acting on said lever, substantially as set forth.

2. The combination, with a music-box comb and pin-cylinder, of an electromotor for rotating the pin-cylinder, a contact-spring in circuit with one pole of the battery, a pivoted lever adjacent to said contact-spring and controlled by one of the rotating parts of the music-box mechanism, and a cam for pressing said lever against the above-mentioned contact-spring, said lever being in circuit with the battery, substantially as set forth.

3. The combination, with a comb and pin-cylinder, of gearing for operating the said pin-cylinder, a worm connected with said gearing and provided with a shoulder near its upper end, and a transverse pin on that part above the shoulder, a motor-spindle having a bore in its lower end and notches in the sides of said bore for receiving the upper end of the worm-spindle, and the pins on the same, substantially as set forth.

4. The combination, with a comb and pin-cylinder, of gearing for rotating said pin-cylinder, a worm connected with said gearing, an armature detachably connected with said worm, and field-magnets between which said armature can rotate, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

CHAS. A. HUSSEY.

Witnesses:

OSCAR F. GUNZ,
JOHN A. STRALEY.