

No. 710,084.

Patented Sept. 30, 1902.

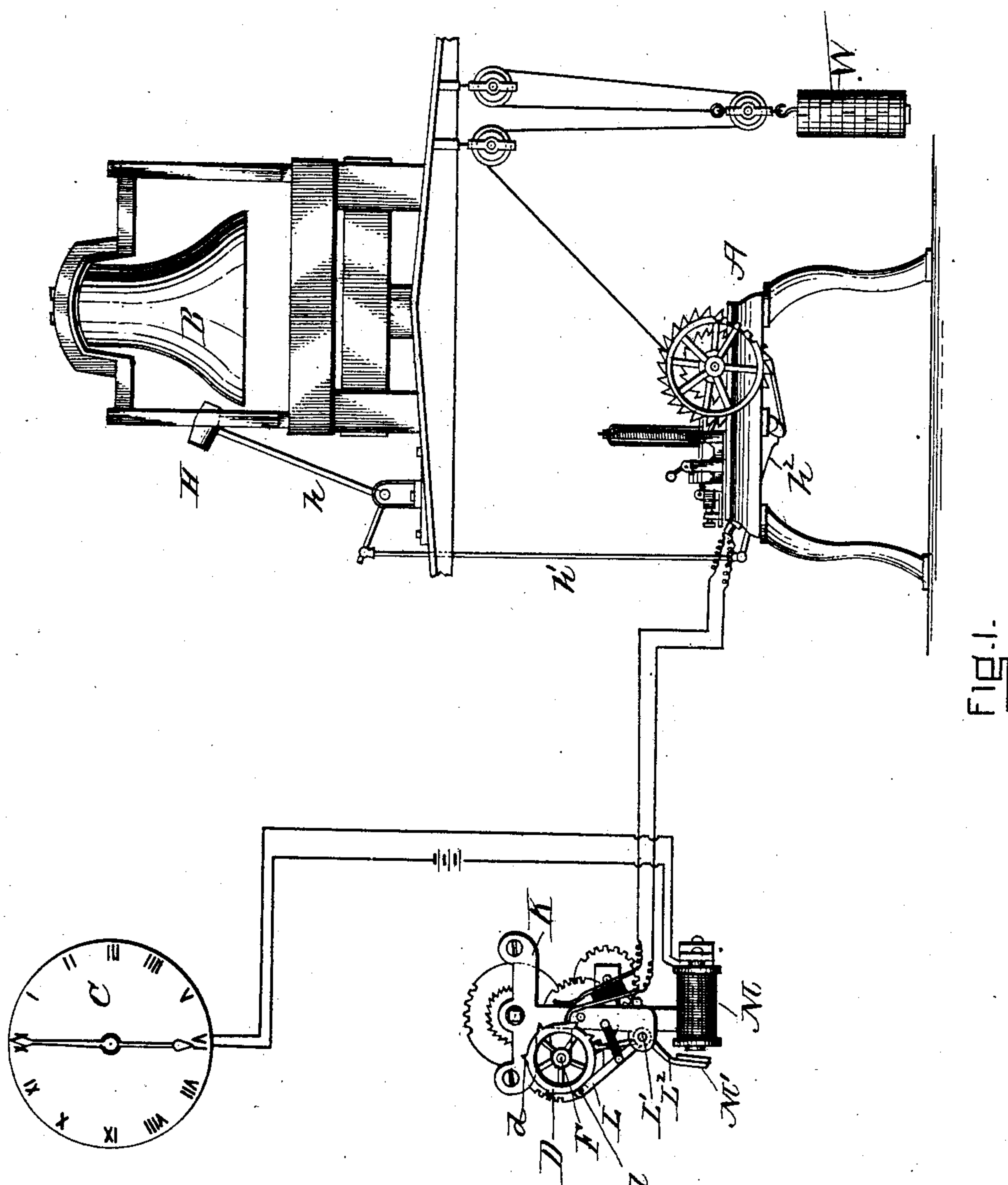
G. M. STEVENS.

CLOCK CHIME.

(Application filed July 22, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES=

Frank G. Parker.
John Buckler.

INVENTOR=

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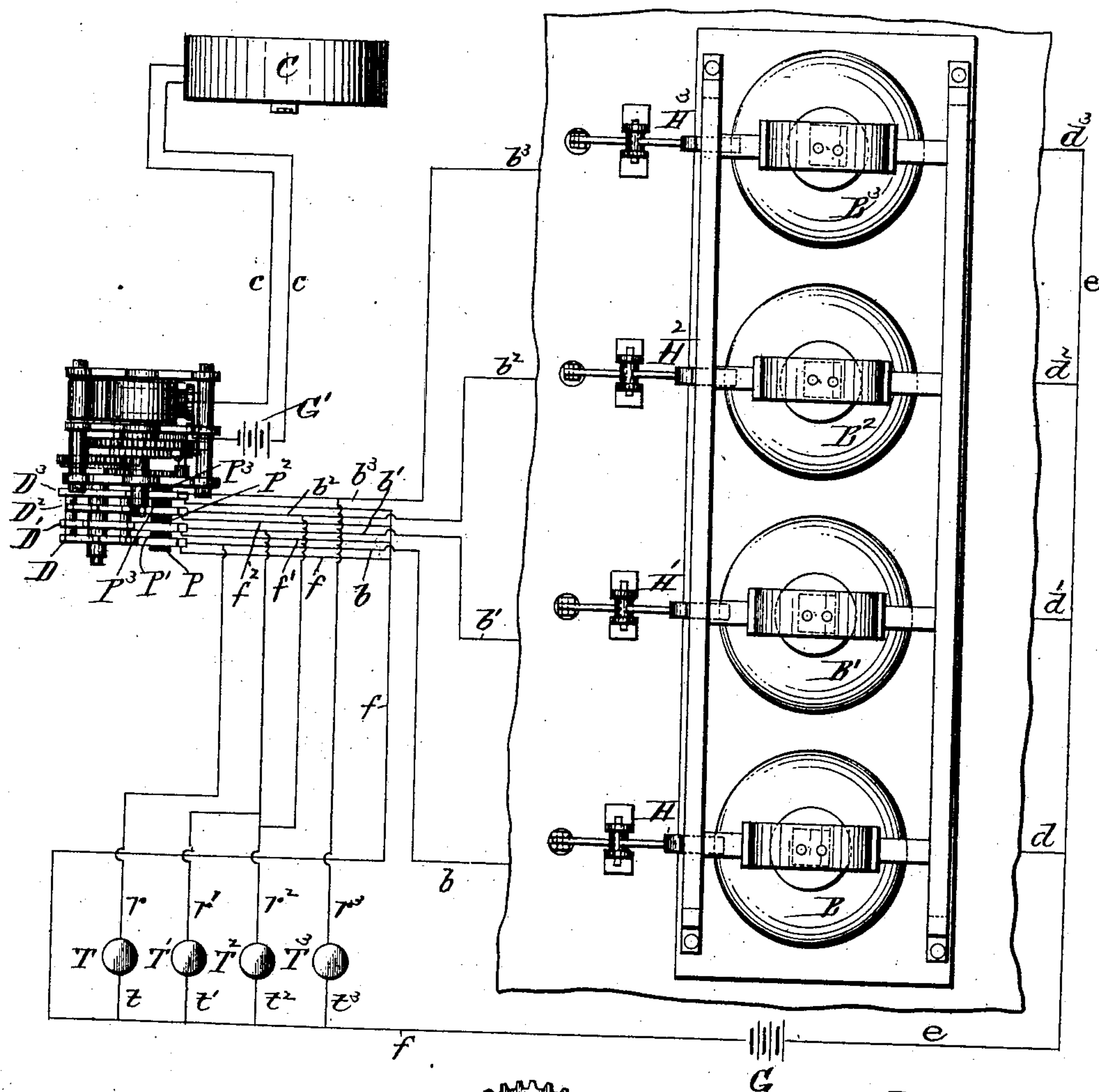


Fig. 2.

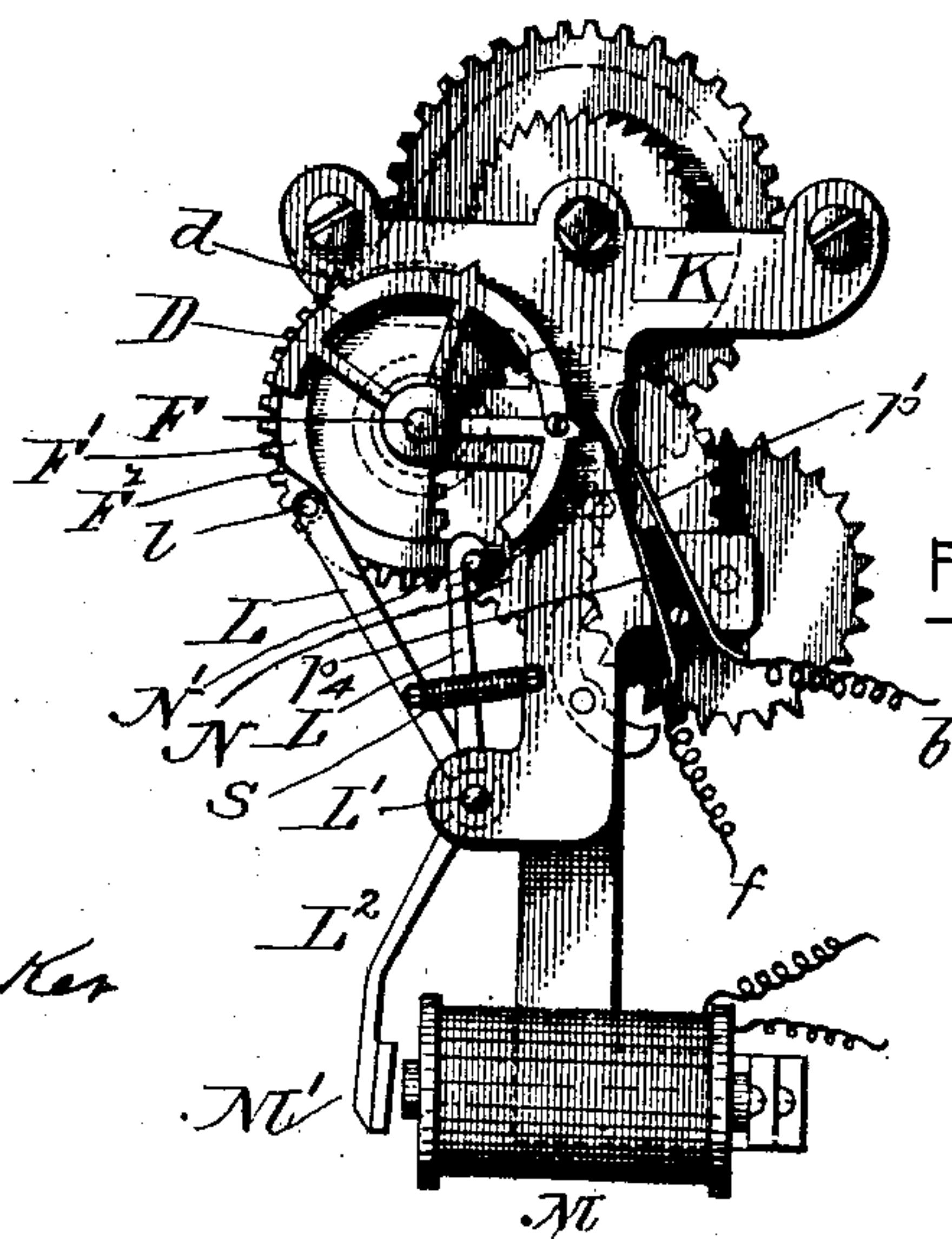


Fig. 3.

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UNITED STATES PATENT OFFICE.

GEORGE M. STEVENS, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNOR TO
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MAINE.

CLOCK-CHIME.

SPECIFICATION forming part of Letters Patent No. 710,084, dated September 30, 1902.

Application filed July 22, 1901. Serial No. 69,323. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. STEVENS, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Chime-Ringing Apparatus, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to a device that will at certain predetermined times cause a peal or a succession of peals to be sounded upon a set of tuned bells; and it consists in peculiarly constructed and combined mechanisms adapted to operate upon a chime of bells for the purpose of producing musical peals, especially for the purpose of cadencing the "Angelus," and may be best understood by reference to the specification and accompanying drawings.

The illustration consists of the following-described figures, of which—

Figure 1 illustrates in elevation the entire apparatus. Fig. 2 is a view, partly in plan and partly diagrammatical. Fig. 3 is an elevation of the controller, on a larger scale than the one shown in Fig. 1. A portion is represented as cut away to show working parts more clearly.

In the general view of my apparatus, Fig. 1, C represents a clock, which may be of any kind that will admit of being provided with electric make-and-break contact-points adapted at certain fixed times to close or open an electric circuit, and thus start a clock-train.

K indicates the motor-train which operates the electric-circuit-closing disks that control the bell-striking machines A. Only one of the said bell-striking machines is shown in the drawings; but, in fact, there are as many of these machines as there are bells. The bell-striking machines are operated by weights W, operating through cords and pulleys, as shown.

The bells B B' B² B³ are sounded by the hammers H H' H² H³, which are made to strike upon the bells in the order required for producing the order of tones desired. Motion is given to the hammers through the transmitting devices h h' h² of the bell-striking machines A. The machines are fully

described in patent granted to me July 6, 1897, No. 585,718; but any striking-machine may be used.

The motor-train that gives motion to the circuit-closing disk is shown in Fig. 3 and consists of a train of wheels driven by a spring or weight. The train of wheels gives motion to the shaft F, upon which are mounted four (in this case) disks D D' D² D³, each having projecting points d, Fig. 3, which in succession act upon a spring conductor-plate, as p, mounted upon one of the insulator-blocks P P' P² P³, and force it to make an electric connection with another conductor-plate, as f, (see Figs. 3 and 2,) thus establishing an electric circuit through one of the bell-striking machines A.

The let-off device for the above motor-train consists of an electromagnet M, energized by the generator G'. An armature M' operates a lever L² L⁴ L, which is pivoted at L'. The two branches of the lever L and L⁴ act together; but one, L, operates in connection with the wheel F' and the other, L⁴, in connection with the wheel N. The branch L has a pin l, which rests against the edge of the rim on the wheel F. The edge of the rim F' is cut into, as shown at F², (and at other points, if desired,) so that at this point the pin L may be forced by the spring S inward, as shown in Fig. 3. In this position the hooked arm L⁴ of the lever L L⁴ engages with a pin N' on the wheel N, and thus stops and holds it. To start the motor-train, the magnet M has to be energized, so as to draw the armature M'. This action will operate the lever L and its arms L L⁴, thus removing the hook from the pin N' and allowing the wheels to rotate. As the wheel F' rotates it will cause the rim F² to move, so that the notch F³ will no longer be in position for the pin l on the lever L to drop into it, the said pin being held by the full part of the rim F², so that the hook on the end of the arm L⁴ cannot engage with the pin N' and thus stop its rotation; but as soon as the wheel F in its rotation brings one of the notches in the rim F² opposite to the pin l then the lever and its arm L⁴ will be drawn inward by the spring S, and the hook at the end of the arm L⁴ will engage with the pin

N' and stop the train and hold it until the magnet is again energized. Other stopping devices may be used.

In Fig. 2 a series of switch-buttons T T' T² T³ are shown. These afford a means for ringing any one or all of the bells independently of the clock and the clock-train.

The operation of my apparatus may be explained as follows: The clock and the motor-train are both wound up. At the time for ringing the bells an electric connection will be made by the clock through the wires *c c'* (see Figs. 2 and 3) and the electromagnet M will be energized, and, as already explained, the clock-train will start, giving motion to the electric-circuit-closing disks D D' D² D³. The electric circuit for the disk D (which, acting through the bell-striking machine, sounds the bell B) consists of the conductor-plate *p*, wire *b*, Fig. 2, to the striking-machine of bell B, wires *d⁰* and *c* to generator G, then by wire *f* back to conductor-plate *p*. The circuit for bell B' is wires *b' d' e*, generator G, wire *f'*; for the bell B², wires *b² d² e*, generator G, wire *f²*; for the bell B³, wire *b³ d³ e*, generator G, wire *f³*. The switch-button circuits are, for bell B, button T, wires *r b* to striking-machine, wires *d e* to generator G, wires *f t*; for bell B', button T', wires *r' b'* to striking-machine, wires *d' e* to generator, wires *f' t*; for bell B², wires *r² b²* to machine, wires *d² e* to generator G, wires *f² t²*; for bell

B³, wires *r³ b³* to machine, wires *d³ e* to generator, wires *f³ t³*.

I have shown and described in this application a system of switch-buttons by means of which the bells may be rung directly by the operator; but I do not claim the same, as that will be the subject of another application.

I claim—

A chime-ringing apparatus, comprising a chime of bells, each having a hammer adapted to strike its bell; mechanisms for operating said hammers; electrical circuits including an electrical generator and make-and-break disks adapted to cause said mechanisms to operate; a series of make-and-break disks having contact-points arranged to cause the said mechanisms to strike the bells in musical order; a motor-train for actuating the said make-and-break disks; a mechanism for starting said motor-train; a clock-movement for timing the operation of said starting mechanism, all adapted to operate together, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 19th day of July, A. D. 1901.

GEORGE M. STEVENS.

Witnesses:

FRANK G. PARKER,
WILLIAM EASON.