(No Model.) 2 Sheets—Sheet 1.

W. K. LORD.

TIME ANNUNCIATOR FOR MUSIC.

No. 458,251. Patented Aug. 25, 1891.

Fig. 1

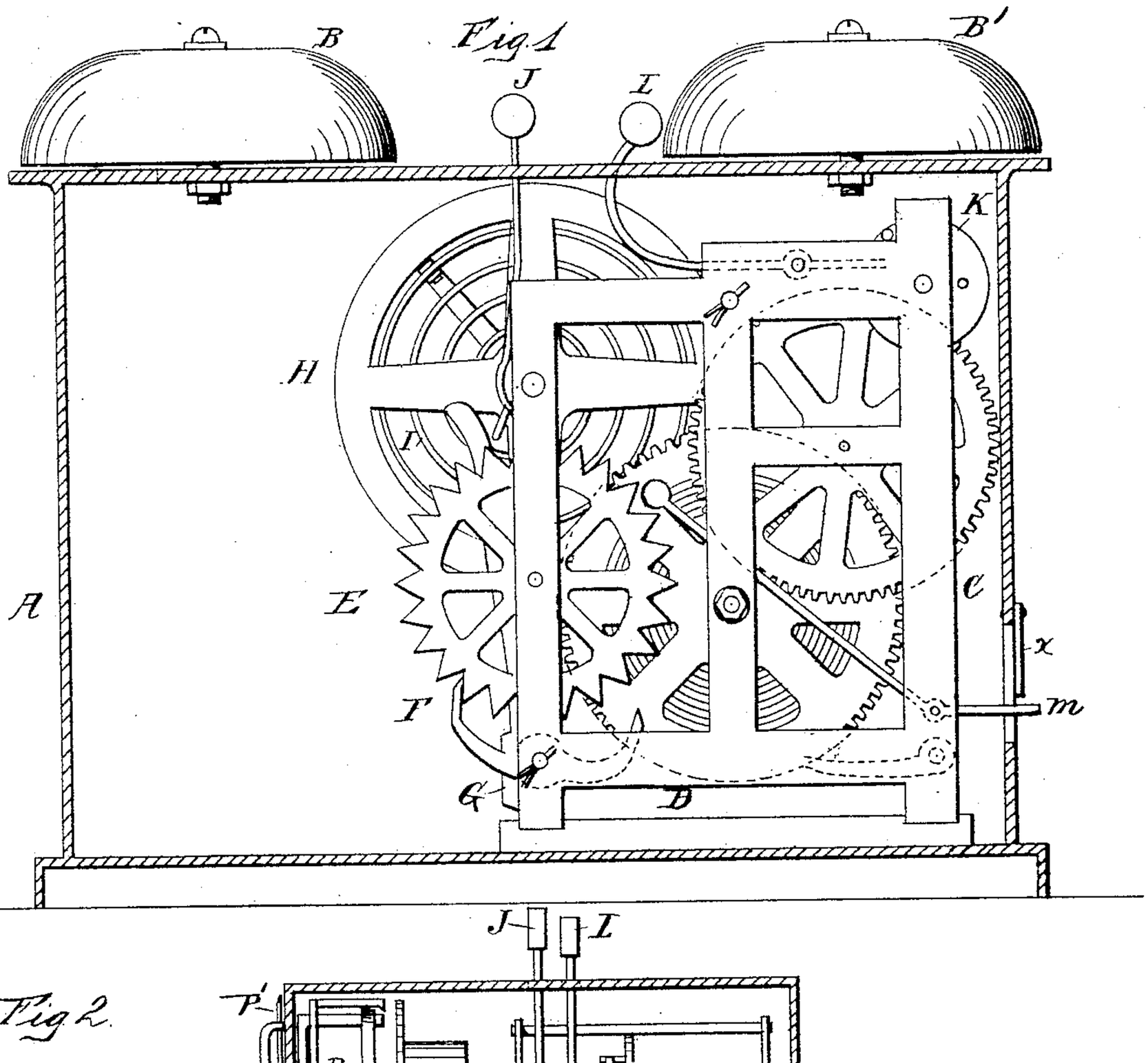
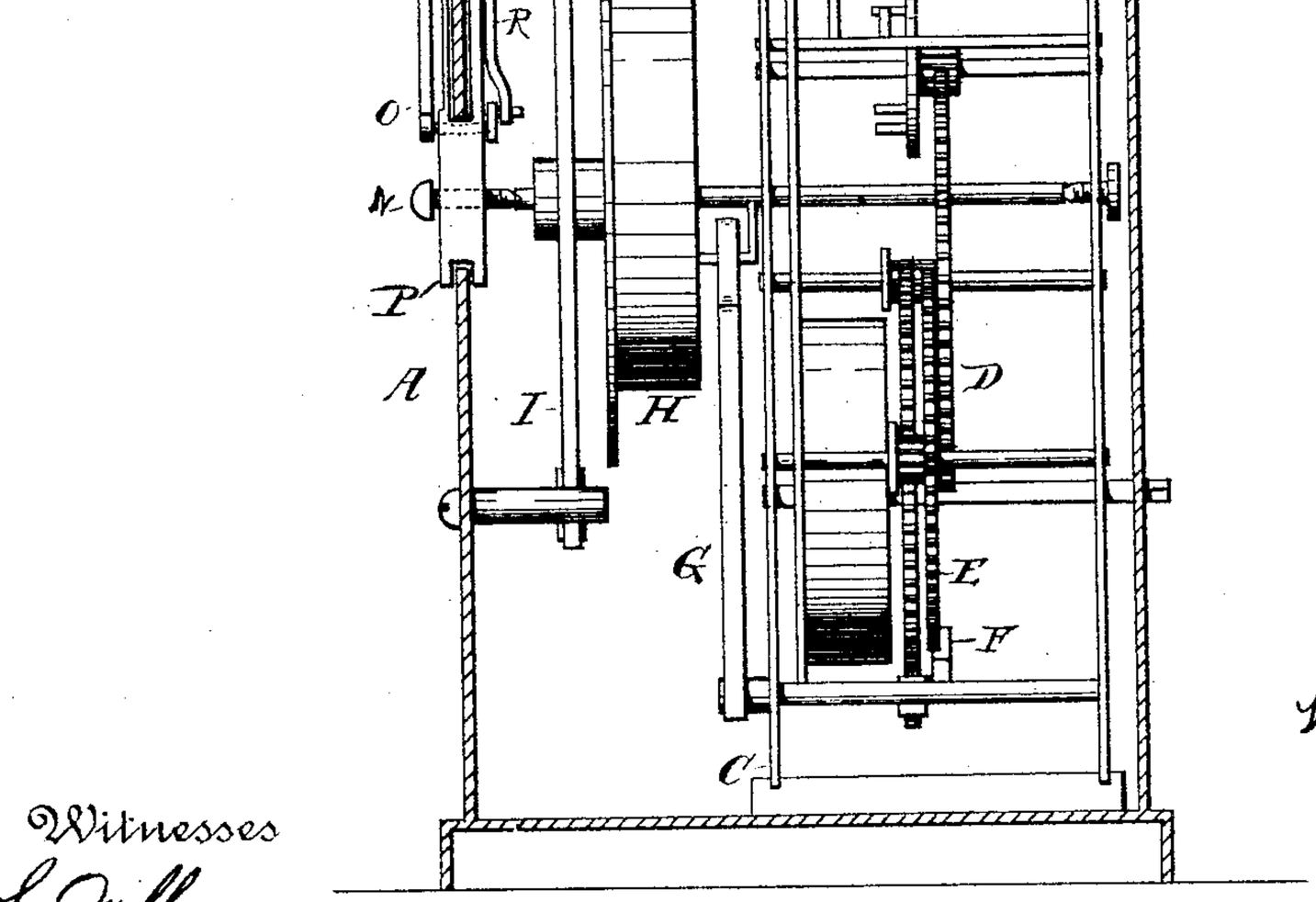


Fig 2.



Witnesses
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Frank John

Wm K. Lord.
Inventor

(No Model.) 2 Sheets—Sheet 2.

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Fig 3

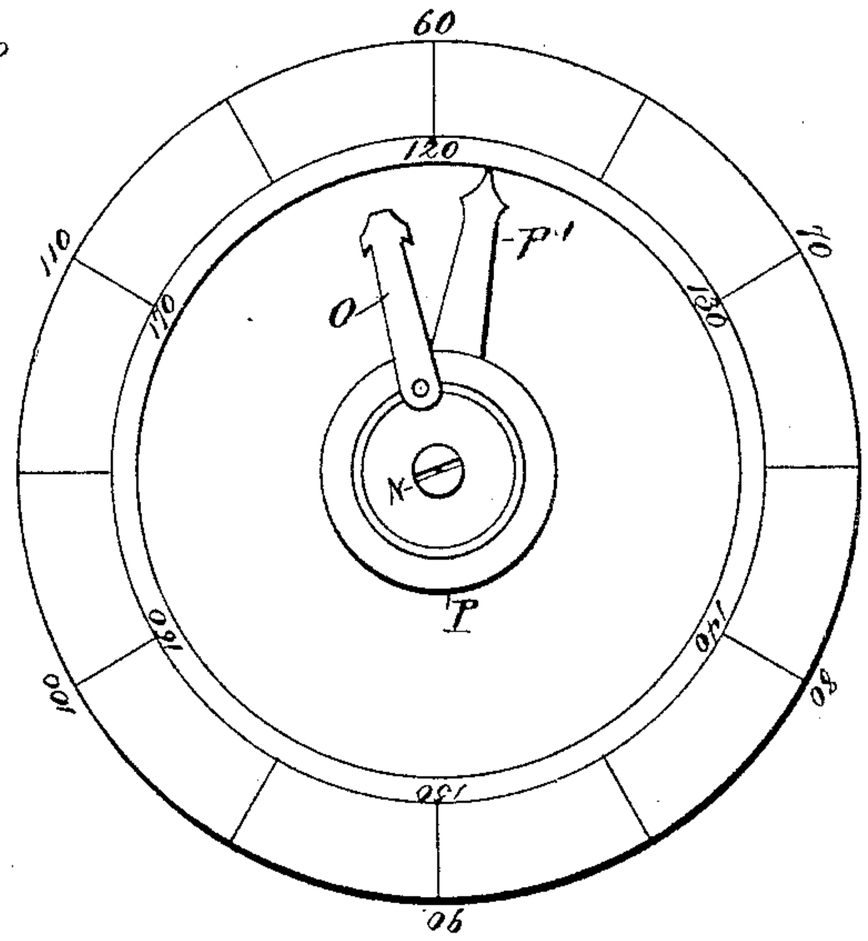
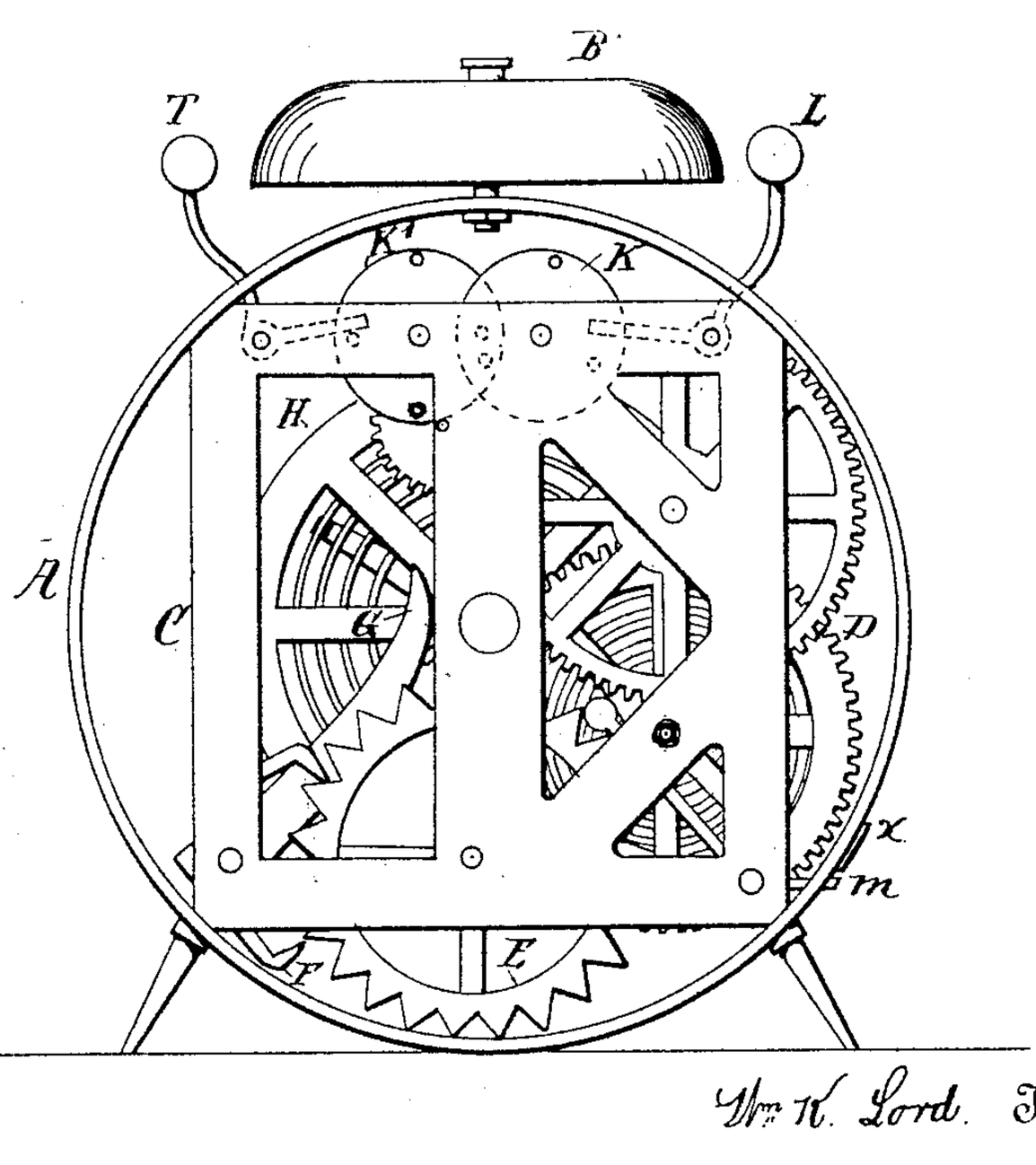


Fig. 4



Witnesses
S. Williams
Frank John

Wm K. Lord. Inventor

UNITED STATES PATENT OFFICE.

WILLIAM K. LORD, OF MOUNT CARMEL, PENNSYLVANIA.

TIME-ANNUNCIATOR FOR MUSIC.

SPECIFICATION forming part of Letters Patent No. 458,251, dated August 25, 1891.

Application filed October 24, 1890. Serial No. 369,254. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM K. LORD, of Mount Carmel, in the county of Northumberland and State of Pennsylvania, have invented a new and Improved Time-Annunciator for Music, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved annunciator which is simple and durable in construction and serves to indicate the exact time and accents of any piece of music.

The invention consists in a spring-actuated train of wheels, which, by means of an escapement, balance-wheel, and spring, is adapted to sound a bell at each oscillation of the balance-wheel; also, by a means of regulating the vibrating length of the escapement-spring and a means of adjustment of bells, or an arrangement of the pins actuating a trip-hammer, is adapted to give the proper time and accents.

The invention also consists in certain parts and details, as will be fully described hereinafter, and then pointed out in the claims.

Figure 1 is a rear view of the improvement as adapted for an oscillating and a trip hammer to strike the bells. Fig. 2 is an end elevation of the same. Fig. 3 is a view of the face. Fig. 4 is a rear view of the improvement of a different form, adapted for two trip-hammers.

The improved annunciator is provided with a spring-actuated train of wheels which rotate an escape-wheel. By means of an escapement and lever the balance-wheel is oscillated at regular intervals, the time being determined by the vibrating length of the escapement-spring. By moving the hand on the face to the right the vibrating length of the spring is shortened and the balance-wheel oscillates faster, and by moving the hand to the left the vibrating length of spring is lengthened and the balance-wheel oscillates slower. The escapement also vibrates a hammer, striking a bell at each oscillation of the balance-wheel. Bells are so arranged as to produce different sounds. This determines the musical accents for two-four, four-four, &c., time; also by suitable mechanism, hereinafter described, a bell is struck with a trip-hammer and the proper musical accent given for three-four, three-eight, &c., time. By using two trip-hammers the vibrating hammer can be dispensed with. The trip-hammer not in use can be held back by a catch; also the bells can be moved out of reach of the vibrating hammer.

As shown in the drawings, in Figs. 1 and 2, A is a box made of wood or metal, having the bells B and B′ on same movable laterally in a slot.

C is a metal frame carrying a spring-actuated train of wheels D, which rotates the wheel E, connected with the escapement F, which, through the lever G, oscillates the balance-wheel H. The hammer J is also connected with the escapement and is vibrated at the same time, alternately striking the bells B and B′, striking one harder than the other, or the tones being different. The train of wheels D also rotates the wheel K, which by its three projecting pins actuates the trip-hammer L at each oscillation of the balance-wheel. The pins in the wheel K are equidistant but not arranged in a circle, one being nearer the circumference than the other two, and thus producing the proper accent for three-four, three-eight, &c., time.

To control the time of oscillation of the balance-wheel the device shown in Figs. 1, 2, and 3 determines the vibrating length of the escapement-spring.

P is a circular piece of metal flanged on both sides and revolving in a hole in box A. One flange is extended to form a hand P′ and the other to form an arm and pin for holding escapement-spring I. A screw N is passed through the center of P and forms a bearing for shaft of balance-wheel.

A hole is drilled near outer edge of P to admit the piece O, which consists on the outside of a lever adapted at end to fit over hand P′ and on the inside of a small crank or cam. The piece R extends from this crank or cam and forms a fork extending behind pin on P and so arranged that when lever O is brought on top of hand P′ then the escapement-spring is gripped tightly between the fork and the pin. This clutch may be dispensed with for some purposes and a slotted pin used instead.

Fig. 4 shows a modified form of the annunciator.

The vibrating hammer and one of the bells is dispensed with and another trip-hammer T used instead.

The stud-wheel K′ has two (or some multiple of two) pins arranged equidistant, but with the first pin of each pair nearer the circumference than the other, thus producing the proper accent for two-four, four-four, &c., time.

I do not limit myself to any particular device or special construction for carrying out the invention. I also can use a pendulum in combination with this system of vibrating and trip hammers and the bells.

The numbers on face in Fig. 3 denote the number of oscillations per minute of the balance wheel, the outer numbers for the first revolution of the hand P′ and the inner numbers for the second revolution.

M is a stop arranged to engage the teeth of wheel E, and X is a catch to hold it up.

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

1. In a time-annunciator for music, the means of controlling the time of oscillation of the balance-wheel, consisting of a circular piece of metal P, forming at its center a bearing for the shaft of the balance-wheel, flanged on both sides and capable of revolving in a hole in box A, one flange being extended to form a hand and the other to form an arm to hold the escapement-spring, substantially as shown and described.

2. In a time-annunciator for music, the combination of a spring-actuated train of wheels, an escapement, balance-wheel, and spring, the means of regulating the time of oscillation of the balance-wheel, and a vibrating hammer adapted to strike a bell at each oscillation of the balance-wheel, as shown and described.

3. In a time-annunciator for music, the combination of a spring-actuated train of wheels, an escapement, balance-wheel, and spring, the means of regulating the time of oscillation of the balance-wheel, and a trip-hammer adapted to strike a bell at each oscillation of the balance-wheel, substantially as shown and described.

4. In a time-annunciator for music, the combination of a spring-actuated train of wheels, an escapement, balance-wheel, and spring, the means of regulating the time of oscillation of the balance-wheel, and a vibrating hammer adapted to strike a bell at each oscillation of the balance-wheel and give the proper accent for two-four, four-four, &c., time, substantially as shown and described.

5. In a time-annunciator for music, the combination of a spring-actuated train of wheels, an escapement, balance-wheel, and spring, the means of regulating the time of oscillation of the balance-wheel, and a disk-wheel with three pins adapted to sound a bell by means of a trip-hammer at each oscillation of the balance-wheel and give the proper accent for three-eight, three-four, six-four, &c., time, substantially as shown and described.

6. In a time-annunciator for music, the combination of a spring-actuated train of wheels, an escapement, balance-wheel, and spring, the means of regulating the time of oscillation of the balance-wheel, and a disk-wheel with two or some multiple of two pins adapted to sound a bell by means of a trip-hammer at each oscillation of the balance-wheel and give the proper accent for two-four, four-four, &c., time, substantially as shown and described.

7. In a time-annunciator for music, the combination of a spring-actuated train of wheels, an escapement, balance-wheel, and spring, the means of regulating the time of oscillation of the balance-wheel, a vibrating hammer adapted to strike a bell at each oscillation of the balance-wheel and give the proper accent for two-four, four-four, &c., time, a trip-hammer adapted to strike a bell at each oscillation of the balance-wheel and give the proper accent for three-eight, three-four, six-four, &c., time, a revolving hand on face of box, and the numbering of face to correspond with the number of oscillations of the balance-wheel per minute, substantially as shown and described.

8. In a time-annunciator for music, the combination of a spring-actuated train of wheels, an escapement, balance-wheel, and spring, the means of regulating the time of oscillation of the balance-wheel, a trip-hammer adapted to strike a bell at each oscillation of the balance-wheel and give the proper accent for two-four, four-four, &c., time, a trip-hammer adapted to strike a bell at each oscillation of the balance-wheel and give the proper accent for three-eight, three-four, six-four, &c., time, a revolving hand on face of box, and the numbering of face to correspond with the number of oscillations of the balance-wheel per minute, substantially as shown and described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM K. LORD.

Witnesses:
S. WILLIAMS,
FRANK JOHN.