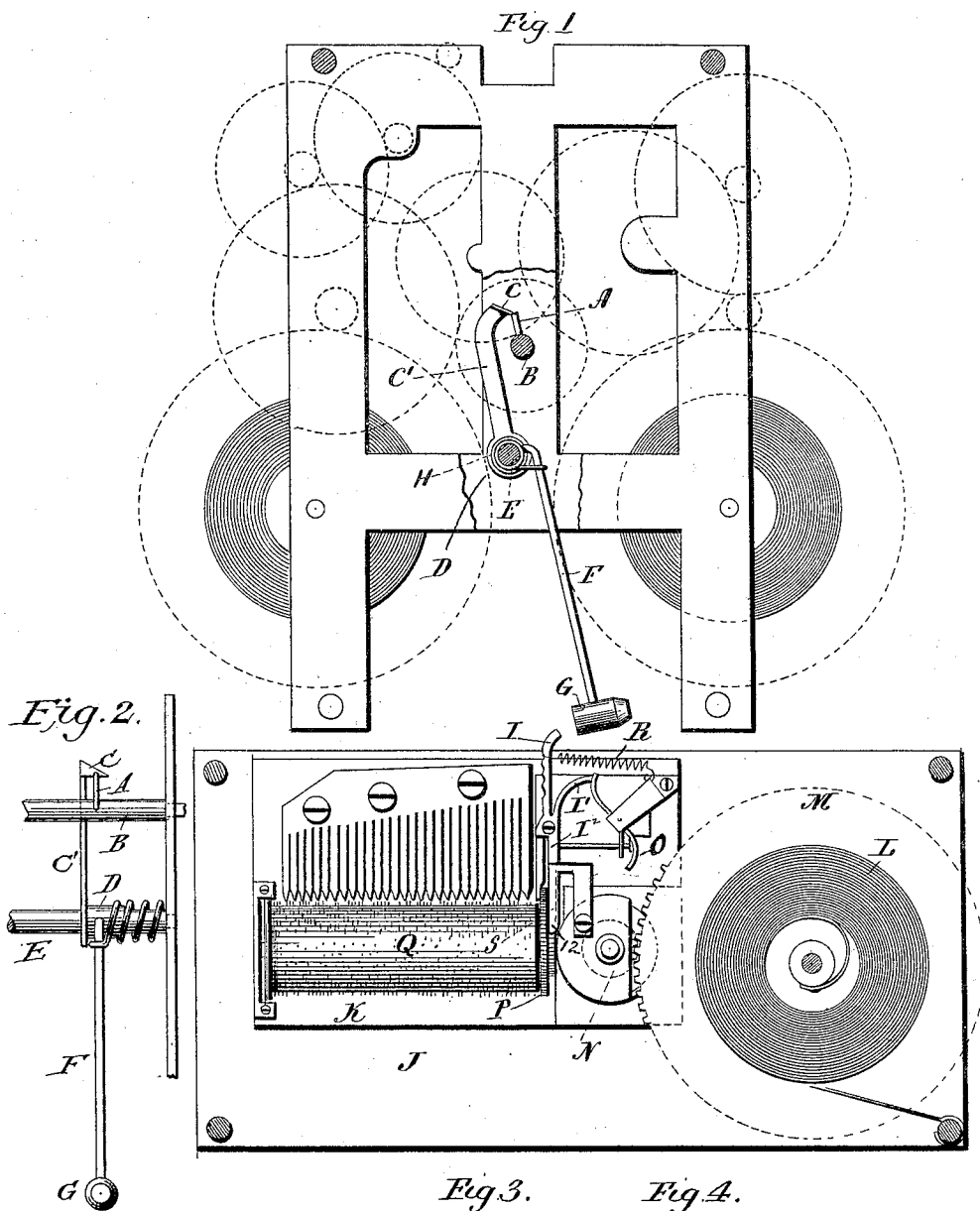


(No Model.)

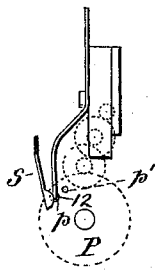
H. W. PORTER.
MUSICAL CLOCK.

No. 528,739.

Patented Nov. 6, 1894.



Witnesses,
J. H. Shumway
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Henry W. Porter,
Inventor
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UNITED STATES PATENT OFFICE.

HENRY W. PORTER, OF FORESTVILLE, CONNECTICUT, ASSIGNOR OF ONE-HALF TO FREDERICK N. MANROSS, OF SAME PLACE.

MUSICAL CLOCK.

SPECIFICATION forming part of Letters Patent No. 528,739, dated November 6, 1894.

Application filed November 27, 1893. Serial No. 492,105. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. PORTER, of Forestville, in the county of Hartford and State of Connecticut, have invented a new
5 Improvement in Musical Clocks; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same,
10 and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view partly in rear elevation and partly in section of a musical clock constructed in accordance with my invention,
15 and showing both the clock-movement and the music-box mechanism; Fig. 2, a detached view in side elevation of the music-box attachment to the clock-movement; Fig. 3, a detail view showing the operating-lever, the
20 spring guard and the stop-wheel of the music-box mechanism; Fig. 4, a detached view of the spring-guard of the said mechanism.

My invention relates to an improvement in clocks of that class which have music-box
25 mechanisms combined with them, and which are constructed to release those mechanisms for playing at predetermined intervals, the object of my present invention being to produce a simple construction, not liable to derangement, and imposing but little additional
30 work upon the time side of the clock-movement.

With these ends in view, my invention consists in certain details of construction and
35 combinations of parts as will be hereinafter described and pointed out in the claims.

In carrying out my invention, as herein shown, I locate a music-pin A in the center or main-arbor B of the clock-movement, the
40 said arbor being driven in the usual manner, by the time-train thereof, and rotated once an hour. This pin may be replaced by a cam, which would be an equivalent releasing device. I may here remark that the clock-movement may, both in its time and strike trains,
45 be of any approved construction, my invention being limited to no particular movement. The said pin A is arranged to engage with an inwardly turned beveled-finger C, formed
50 at the upper end of an arm C', which is secured to and extends about vertically upward

from the inner end of an oscillating-sleeve D, mounted upon the rear end of an arbor E, secured between the two plates of the movement. The said sleeve D is rigidly connected
55 with the upper end of the arm F of a music-hammer G, which extends downward to the lower edge of the movement. A spring H, encircling the said sleeve, is connected with the hammer-arm and with the movement, in
60 such a manner that it exerts a constant effort to move the arm C' toward the arbor B. The said arm, it may be here mentioned, is made of sheet-metal, and is elastic, and has its finger C beveled, so that when the arbor is turned
65 back, as for instance in setting the clock, the arm will spring out of the way, and constitute as the phrase is, a "turn-back." It will be understood from the foregoing construction, that once every hour the pin A will raise and
70 drop the arm C' through the finger C thereof. When the pin passes beyond the said finger, which it is just about to do as shown in Fig. 1 of the drawings, the spring H asserts itself, and causes the hammer G to sharply strike
75 the upper end of the operating-lever I of the music-box mechanism, whereby the same is released. The said music-box mechanism may be of any approved construction, and as herein shown, is independently organized,
80 which is to say that it has no organic relation to the clock-movement, and is not driven therefrom. It is mounted between two heavy movement-plates, only one of which, J, is shown, its bed K being secured thereto.
85

Instead of being driven by the ordinary small spring employed in music-box mechanisms, it is driven by a large heavy spring L, which actuates a main wheel M, meshing into the main pinion N of the music-box train,
90 which is of ordinary construction, and does not need description. The actuation of the said music-box train is controlled in the usual manner by a fly O, engaged for striking the train by a stop-arm I', forming a member of the operating-lever I. The inner end of the
95 said lever is constructed with a stop-finger I², which enters a hole p formed to receive it in a stop-wheel P, which is one of the wheels of the music-box train, and which is rigidly connected with the drum of the box. When the
100 stop-finger is lifted out of the said hole by

the oscillation of the lever caused by the impact of the hammer G upon its upper end, the music-box train is released, and carries the drum through one complete rotation, when it is arrested by the re-entrance of the stop-finger into the said hole under the action of the spring R, attached to the upper end of the lever. A spring-guard S, co-operates with the stop-finger in order to temporarily close the hole *p* in the stop-wheel P, whereby the stop-finger is prevented from immediately re-entering the hole before the drum has carried the same out of range with the finger. A pin *p'* carried by the wheel P, engages with the guard S, to push the same away from the hole preparatory to the re-entrance of the finger thereinto.

The operation of the spring-guard is not, broadly speaking, new with me, and is thought not to require further description.

The particular mechanism of the music-box may be varied without departing from my invention, so long as it is adapted to be operated by a music-hammer substantially such as above described.

By preference I operate the music-hammer through the center-arbor of the time-train, but that is not necessary, as some other arbor might be employed. As herein shown the music-box is additional to the clock, and does not by playing take the place of the ordinary striking mechanism which is designed to be used in the usual manner. If preferred, however, I may dispense with the striking mechanism and play the box on the hour or half hour, or otherwise.

In view of the foregoing, I would have it understood that I do not limit myself to the exact construction herein shown and described, but hold myself at liberty to make such changes and alterations therein as fairly fall within the spirit and scope of my invention.

I am aware that it is old to release a music-box mechanism through the medium of a hammer actuated by the time-train of a clock-movement, and acting upon a releasing lever connected with the mechanism. I am also

aware that it is old to release a music-box mechanism by periodically dropping a time-controlled hammer upon a member of the music-box mechanism. I do not, therefore, claim either of those constructions broadly.

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

1. In a musical-clock, the combination with the center-arbor thereof, of a releasing device mounted thereupon and rotating therewith, an operating-arm engaged by the said device once during every rotation thereof, and adapted to permit the arbor and device to be "turned back," a music-hammer connected with the said arm and moving therewith, a spring for operating the hammer when it is released, and a music-box mechanism including an operating-lever arranged to be struck directly by said hammer when the same is operated by the said spring, for releasing the mechanism, which is adapted to stop automatically after one rotation of the drum of the box, substantially as described.

2. In a musical-clock, the combination with the center-arbor thereof, of a releasing device mounted thereupon and rotating therewith, an operating-arm arranged to be actuated by the said device, a sleeve mounted so as to oscillate upon an arbor located in the movement below the main-arbor, and having the said arm rigidly connected with it, a hammer-arm connected with and depending from the said sleeve and carrying a hammer, a spring connected with the hammer for causing the same to strike a blow when the operating-arm is released by the releasing device, and a music-box mechanism containing an operating-lever which releases the mechanism when it is directly struck by the said hammer, substantially as set forth.

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

HENRY W. PORTER.

Witnesses:

LULU I. BEACH,

HOWARD C. BEACH.