

# UNITED STATES PATENT OFFICE.

OSCAR F. GUNZ, OF RUTHERFORD PARK, NEW JERSEY, AND ALFRED SUEUR, OF NEW YORK, N. Y., ASSIGNORS TO M. J. PAILLARD & CO., OF NEW YORK, N. Y.

## MUSIC-BOX.

SPECIFICATION forming part of Letters Patent No. 355,447, dated January 4, 1887.

Application filed March 11, 1886. Serial No. 194,774. (No model.)

*To all whom it may concern:*

Be it known that we, OSCAR F. GUNZ, of Rutherford Park, Bergen county, State of New Jersey, and ALFRED SUEUR, of the city, county, and State of New York, have invented certain new and useful Improvements in Music-Boxes, of which the following is a specification.

Heretofore music-boxes have been constructed with revolving pin-cylinders mounted in the frame of the box in such a manner that they could not be removed, or with cylinders which could be removed to be replaced by others having their pins arranged to play different melodies. Of the removable cylinders there are two kinds, known as the "changeable" and the "interchangeable." The changeable cylinders must be fitted very accurately into the box at the time it is made, and additional cylinders cannot be supplied at a later date; whereas the interchangeable cylinders are provided with a suitable mechanism for adjusting their shafts in place, so as to permit the pins to strike the proper teeth of the combs at the proper times, an adjusting device of the kind being found in the Patent No. 212,108, issued on the 11th day of February, 1879, to M. J. Paillard & Co., assignees of Amedée Paillard.

The object of our invention is to provide a new and improved device for adjusting and locking said interchangeable cylinders in place, said improved locking device being of simple construction and occupying less space than the devices used for the same purpose heretofore.

The invention consists in the combination, with the latch-levers used for locking the removable pin-cylinders in place, of cam or wedge devices for adjusting and retaining the shaft in a proper position, all as will be described and set forth hereinafter, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal view of the shaft of a pin-cylinder provided with our improved locking device, part of the cylinder being shown in section. Fig. 2 is a side view of the same, the shaft being shown in section. Fig. 3 shows a top view of the bolt and a section of the latch. Fig.

4 is a side view of the bolt, and Fig. 5 is a cross-sectional view of a modified construction. Fig. 6 is a side view of a latch lever and cross-section of the shaft showing another modification of our improvement. Fig. 7 is a cross-sectional view of a part of the same, and Figs. 8 and 9 are cross sectional views of modifications.

Similar letters of reference indicate corresponding parts.

The shaft A carries the cylinder B, which is mounted to slide on said shaft in the direction of its length, and is revolved by a pin, C, projecting from a disk, D, into an aperture in the end of the cylinder.

The shaft A is journaled in the standards E and F, both provided with latches G, which prevent lifting out the shaft. The bearings for the cylinder are so constructed as to permit a slight movement of the shaft in the direction of its length.

The shaft A is provided at one end with a shoulder, H, which fits against an offset, H', in the bearing F. At the other end the shaft is provided with a bevel-collar, I—that is, with a collar having a wedge-shaped cross-section, or a bevel on one side only, as may be desired. The latch G, pivoted in the standard E, is provided with a sliding-bolt, J, which is pressed in a direction toward the bevel-collar I by the spring J', interposed between the inner end of the bolt and a plate or cross-piece on the latch, said spring being contained in a suitable recess, as shown in Figs. 3 and 4. In place of the spiral spring shown the bolt may be connected to a flat spring, J<sup>2</sup>, having one end secured in a recess in the latch G. While placing the shaft upon the bearings or removing it from the same the latches G are in the position shown in dotted lines in Fig. 2, and when the shaft is to be locked the latches are swung in the direction of the arrow a', Fig. 2, causing them to press down upon the bearings. At the same time the beveled end of the latch G, acting on the beveled collar I, presses the shaft in the direction of its length, as indicated by the arrows b', Fig. 1, until the shoulder H rests against the offset H' of the standard F. Any longitudinal play of the shaft is thus prevented, and the cylinder and



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EDWIN W. MORTON, OF WHITE PLAINS, NEW YORK, ASSIGNOR TO ALEXANDER McCULLOUGH, OF WALES, ONTARIO, CANADA.

## TWENTY-FOUR-HOUR CLOCK.

SPECIFICATION forming part of Letters Patent No. 355,461, dated January 4, 1887.

Application filed December 17, 1883. Serial No. 114,760. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN W. MORTON, residing at White Plains, in the county of Westchester and State of New York, have invented an Improvement in Time-Pieces, of which the following is a specification.

The object of my invention is to provide a time-piece by which the hours may be counted successively from one to twenty-four, and yet have but twelve divisions on the dial, thus avoiding the confusion likely to occur from twenty-four divisions, and also to enable persons to count time from one to twelve, if they so wish, by the position of the hands.

The nature of my invention consists in having openings in the dial where the figures usually appear, and to have an under dial having two sets of figures, one set counting from 1 to 12 and the other set counting from 13 to 24. During the fore part of the day the first set of figures appear through the openings, when the under dial turns slightly, and the second set appears for use during the latter half of the day, when it changes back again to the first position.

It also consists in having a lever pivoted to the frame of the clock, carrying a spring and guide-block, which, in connection with a pin on the hour-hand wheel, turns the under dial so as to change the sets of figures once every twelve hours.

In the accompanying drawings, Figure 1 is a central sectional view of my arrangement, taken on the line *x x*, Fig. 3, showing the operating-pin on the central-dial wheel while passing on the outside of the guide-block and on the inside of the operating-spring attached to the lever. Fig. 2 is a half-size face view of the dial as it appears between noon and midnight. Fig. 3 is a plan view of the hour-hand wheel and lever (the hands and dial being removed) while the operating pin on the hour-wheel is passing between the outside of the guide-block and the inside of the operating-spring, pressing said spring outward. Fig. 4 is a plan view of the same while the pin is passing on the inside of the guide-block and the outside of the spring pressing it inward. Fig. 5 is a detached view of the lever, showing the spring in its normal position. Fig. 6 is a

detached view of the hour-hand wheel, showing the operating-pin. Fig. 7 is a side elevation corresponding with the line *y y* of Fig. 3.

Similar letters refer to similar parts throughout the several views.

A is the top plate or frame of the ordinary clock or watch works; B, the center shaft carrying minute-hand; C, the hour or center dial wheel carrying the hour-hand and turning loose on the center shaft; D, the outer or fixed dial; E, the under or movable dial; F, the guide-rim attached to the fixed dial; G, collar fastened to the dial D, upon which the dial E turns; H, minute-hand; I, hour-hand; J, the operating-pin attached to the wheel C; K, the lever that moves the dial E; L, the spring fixed at one end to the lever K; O, the usual pinion fastened to the center shaft, B, which, in connection with the usual wheel and pinion, drives the wheel C; P, opening in outer dial, D, through which the characters on the under dial, E, are seen; Q Q', check-pins limiting the movement of the lever K.

The construction is as follows: The hour-wheel C has projecting downward from its under side a pin or hook, J, having an advanced point, and at the same radius from the center of the wheel the lever K is pivoted to the frame A by means of the screw *a*. The lever K carries a spring, L, having one end, *b*, fixed to it. The other end is free to vibrate. The free end of the spring is made narrower than at *b*, so as to clear the guide-block M and to leave room between it and the lever for the projecting end of the pin J to pass under it. The free end of the spring is also branched out so that the pin J will compress it sufficiently to throw the lever K.

Attached to the lever, directly under the free end of the spring L, is a raised portion or guide-block, M, the outer edge of which corresponds with the radius of the pin J when the end *d* of the lever K is to the right, as shown in Fig. 3, also by the dotted line *e e*, Fig. 5, and the inside of which corresponds with the same radius when the end *d* of the lever is thrown to the left, as shown in Fig. 4 and by the dotted line *g g*, Fig. 5. The block M is made shorter than the spring L, so that the pin J will arrive at the end and allow it



to slip past while the spring is still in contact with the pin J, thus causing the throw of the lever at the proper time. The long end *d* of the lever K is bent upward, so as to engage the block N, having a slot in it to receive the end of said lever. This block is fixed to the under side of the movable dial E, as shown in Fig. 1. The under dial, E, is provided with two sets of figures, one set counting from 1 to 12 and the other set counting from 13 to 24, inclusive, the figures of which alternate with those of the first set, as shown in Fig. 2. This dial is made smaller than the outer dial, and turns on the small block or collar G, fixed to the center of the outer dial, D. The outer edge of the dial E is guided by the rim F, fastened to the outer dial by means of the rim *c*, made a little thicker than the under dial, so that it may turn freely without binding. The outer dial, D, is of the usual construction, with the exception that it has twelve openings in the usual place of the figures, to represent the hours, as shown at P, Figs. 1 and 2.

The operation is as follows: Supposing the end *d* of the lever K to be to the right, as shown in Fig. 3, and the hours shown on the dial to be from 1 to 12, the pin J on the wheel C, in making its circuit once in twelve hours, arrives at and passes inside of the fixed end *b* of the spring L, (its course being as shown by the dotted lines *e e*, Fig. 5,) when it gets nearly to the center of the spring (at the point marked *f*, Fig. 5,) it presses the spring L a little outward, the pressure tending to keep the end *d* of the lever in the same position against check-pin Q' until the advanced point of the pin J, passing under the spring L, engages the outside of the guide-block M, which continues to hold the lever in the same position, while the further advance of the pin J continues to press outward the spring, as shown in Fig. 3, until the hour-hand reaches noon, when the pin having reached the end of the guide-block M, the pressure of the spring L on the pin J sud-

denly throws the end *d* of the lever K to the left, turning the under dial, E, and presenting the other set of figures at the openings in the dial D, counting from 13 to 24. With the next revolution of the pin J it passes on the inside of the end *b* of the spring L, pressing it inward, the advanced point of the pin J passing inside of the guide-block M, (its course being as shown by the dotted line *g g*, Fig. 5,) holding the lever in position against the check-pin Q while the spring is pressed still farther inward, (as shown in Fig. 4,) when, the pin arriving at the end of the guide-block, the lever is again tilted to the right, and within the next twelve hours the first operation is completed. Thus it will be seen that the figures shown at the openings in the outer dial during the first twelve hours of the day will count from 1 to 12, when the under dial turns one twenty-fourth of a revolution, presenting a new set of figures at the openings, counting from 12 to 24, for use during the latter half of the day, when at midnight they will change back again to the first position.

What I claim as my invention, and wish to secure by Letters Patent, is—

1. The combination, with the movement and hands of a time-piece and dials D and E, of the lever K, operated by said movement, substantially as shown and described, and for the purpose set forth.

2. In a time-piece, the combination, with the dial D and under dial, E, the lever K, having spring L and guide-block M, substantially as described, and for the purpose set forth.

3. In a time-piece, the combination, with the dials D and E, lever K, carrying spring L, and guide-block M, of the hook or pin J, substantially as shown and described.

EDWIN W. MORTON.

Witnesses:

G. M. BROWN,  
G. M. FROST.