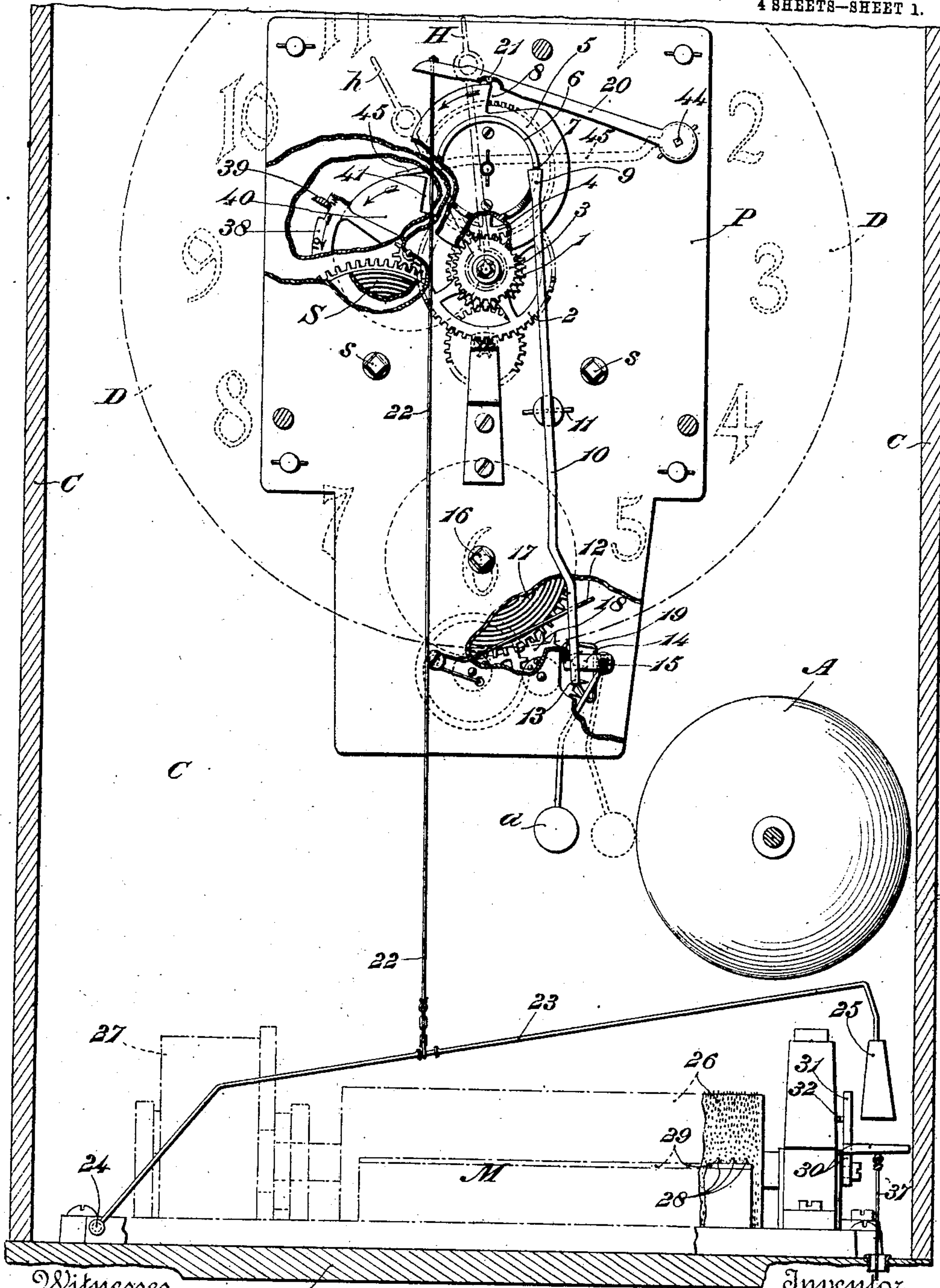


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CLOCK WITH ALARM AND MUSIC ATTACHMENT.  
APPLICATION FILED FEB. 27, 1908.

904,929.

Patented Nov. 24, 1908.

4 SHEETS—SHEET 1.



Witnesses  
Harry Fung.  
Edward R. Whitman

Fig. 1. Victor M. A. Bogaert  
By Julian C. Dour M. For  
his Attorneys.



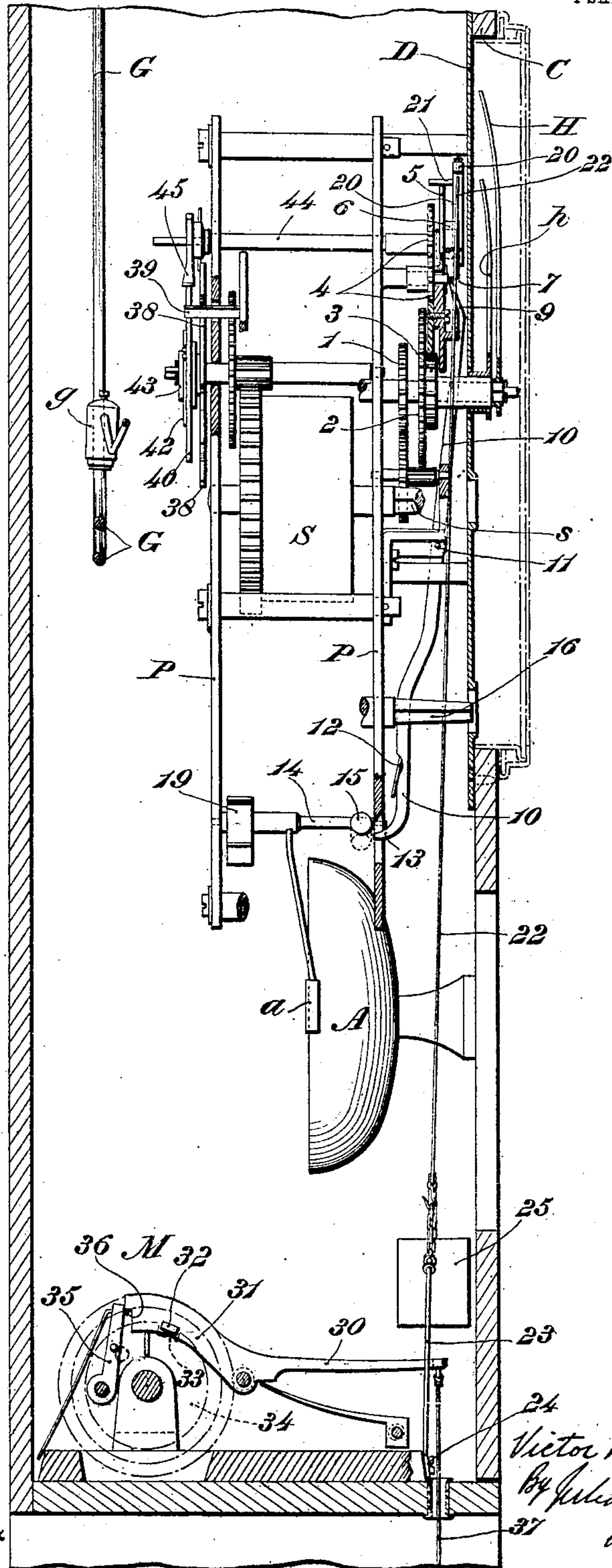
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4 SHEETS—SHEET 3.

Fig. 3.



Witnesses  
Harry King  
Edward R. Witman

Inventor  
Victor M. A. Bogaert.  
By Julian C. Dowell, Jr.  
his Attorney.



**904,929.**

4 SHEETS—SHEET 4.





# UNITED STATES PATENT OFFICE.

VICTOR M. A. BOGAERT, OF LEXINGTON, KENTUCKY.

## CLOCK WITH ALARM AND MUSIC ATTACHMENT.

No. 904,929.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed February 27, 1908. Serial No. 418,131.

*To all whom it may concern:*

Be it known that I, VICTOR M. A. BOGAERT, a citizen of the United States, residing at Lexington, in the county of Fayette and State of Kentucky, have invented certain new and useful Improvements in Clocks with Alarm and Music Attachments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable other skilled in the art to which it appertains to make and use the same.

This invention relates to clocks intended more particularly for use in lodges of secret societies where it is desired to sound an alarm at a given time and follow such alarm by the playing of music or chimes.

One object of my invention is to provide a clock mechanism with means for sounding an alarm once in twenty four hours, as distinguished from the ordinary alarm clocks wherein the alarm having once been wound goes off within the twelve hours or before a complete revolution of the hour-hand. This class of clocks requires the winding and setting of the alarm within the twelve hours next preceding the time when the alarm is to sound; whereas, according to my improvement, the alarm will ring at a given period in twenty four hours, regardless of the time of winding, so that the clock may be wound one night to operate properly on the next night.

Another and main object of my invention is to provide a clock-mechanism with means for automatically controlling a music-playing instrumentality so as to operate at a predetermined time, preferably immediately or shortly after the sounding of the alarm. The music-playing instrumentality referred to may be any ordinary music-box, chime-ringing mechanism, or other mechanical playing instrument.

A further object of the invention is to provide adjusting means for so controlling the latter instrumentality as to operate at various times or at different periods after the sounding of the alarm.

My invention may be applied to any ordinary clock-mechanism, and will be understood, therefore, as not restricted to the mechanism shown or to any particular clock-movement; while it will be further understood that the invention may be embodied in different forms, with modifications as to details, so that I do not desire to con-

fine myself to the particular embodiment herein selected for illustrating my said invention.

With the foregoing remarks in mind, the invention will now be described by reference to the accompanying drawings, which form a part of this specification, and will then be more particularly pointed out in the claims at the end of this description.

In said drawings: Figure 1, representing a vertical section through a clock-case, taken just back of the face of the clock, shows in front elevation the clock-mechanism and a mechanical music-player in the bottom of the case, illustrating an embodiment of my invention. For the sake of clearness, the dial as well as the hour and minute hands on the face of the clock are indicated by dotted lines. Fig. 2 is a rear elevation of the clock-mechanism shown in Fig. 1. Fig. 3 is a transverse vertical section of Fig. 1, showing the clock-works and the music-player in side elevation, with parts of the clock-work broken away. Fig. 4 is a detail side view of the alarm-controlling lever and its cam, showing the lever in position to check the alarm. Fig. 5 is a diagrammatic view of the alarm and music controlling mechanism, according to a preferred adjustment, at the instant when the alarm is sounded; it being understood that the relative position of parts would appear somewhat modified at the same instant if a different adjustment were adopted. Fig. 6 is a diagrammatic view of the same subject-matter a moment after the releasing of the alarm. Fig. 7 is a diagrammatic view of the same subject-matter a moment later, when the mechanical-player is brought into action.

The works of the clock represented in the drawings are shown only to the extent necessary for illustrating my invention.

In Figs. 1 and 2, the letter C denotes a clock case, D the dial, and H and h indicate the minute and hour hands respectively.

P, in the several figures, designates the plates of the clock-movement, connected and at the same time spaced apart by the usual pillars or posts. In the illustrated construction, the movement-frame is attached to a metallic dial-plate by posts projecting from the back face of the latter and attached to the front frame-plate.

S denotes the striking-spring, shown in Figs. 1 and 3, while the going-spring is not shown. The angular stems for key-winding



of the two clock-springs are indicated by the symbol *s*.

G is a gong for the striking of the hours, only a fragment of the well-known spring-gong being shown; and *g* is the hammer for striking said gong.

A is an alarm-bell, and *a* its hammer or clapper.

M is a mechanical music-player located in the bottom of the clock-case.

The minute-wheel 1 is shown connected by the usual gear train with the hour-wheel 2. The latter communicates motion through gears 3 and 4 to a cam-disk 5. Said gears 3 and 4 are in the ratio of one to two, so that the cam-disk 5 revolves once for every two rotations of the hour-wheel, that is once in twenty-four hours. The smaller gear or pinion 3 is coaxial and fast with the hour-wheel, or fixed on the tubular shaft thereof; while the larger gear is likewise fast with the axis of the cam-disk.

On the cam-disk 5 is a circular cam 6, shown as an annular flange on the face of the disk and having a notch 7, which is seen most clearly in Fig. 4. This notch 7 provides an abrupt fall and an incline rising therefrom backward of the direction of rotation, which is indicated by the arrow in Fig. 1 and in Figs. 5 to 7 inclusive. The perimeter of the disk provides a second cam and is made with a similarly arranged but deeper notch 8.

The first cam or edge of the flange 6 rides under and in contact with the free end 9 of an alarm-controlling lever 10. Said lever 10 is intermediately fulcrumed at 11, and is actuated by a spring 12 to cause the end 9 of its upper arm to bear against said flange 6. The other arm of said lever has a curved end 13 which is adapted to project through an opening in the front plate P of the clock-movement and to provide an alarm-stop, by abutting or engaging an arm 14 on the rocker-shaft 15 which carries the clapper or hammer *a*.

The drawings show a well-known type of alarm-operating mechanism, of which 16 denotes the stem for key-winding of the alarm-spring 17. The latter communicates power by a train of gears to the usual scape-wheel 18 which works an anchor 19 on the rocker-shaft 15, for causing the hammer *a* to rapidly strike the alarm-bell A.

During each rotation of the cam-disk 5, which it will be remembered revolves once in twenty-four hours, the normal high surface of the first cam or edge of flange 6 bears under and lifts the upper end 9 of the alarm-controlling lever 10, thereby causing its lower curved end or stop 13 to project into the way of the arm 14 on the rocker-shaft 15 of the hammer *a*, so as to hold the alarm inactive, as shown in Fig. 4. But when, during the rotation of the cam-disk, the notch 7 comes

under the end 9 of the lever, the latter drops into such notch and the stop 13 is thereby withdrawn from out of the way of the arm 14, thus releasing the alarm which goes off in the usual way.

In Figs. 1 and 2, representing the end 9 of the lever 10 just dropped into the notch 7, and where the alarm is consequently going off, the time indicated by the hands on the dial in Fig. 1 is about two minutes before eleven o'clock. Assuming the clock to be used in lodge-meetings, this would be night time, and at the corresponding hour in the morning the notch 7 would still be substantially twelve hours off from position for releasing the alarm-controlling lever, it being remembered that the cam-disk 5 revolves only once in twenty four hours. It is obvious of course that the alarm may be arranged to go off at any other desired and predetermined period, according to the initial adjustment or setting of the cam-disk 5 relative to the hour-wheel, the said cam-disk being initially set to bring the notch 7 into position for releasing the alarm-controlling lever 10 at the particular time in the twenty-four hours when it is desired to sound the alarm.

The second cam of the disk 5, that is its periphery, supports and controls the position of a music-controlling lever or lever-arm 20, which is shown provided with a lateral pin 21 resting upon the said periphery of the disk. This lever 20 is operatively-connected with means for starting the music-player M, the arrangement being such that the music-player is set in action only when the pin 21 drops into the notch 8, once during every rotation of the cam-disk. Various means, controlled by said lever 20, may be employed for putting the music-player in operation. The particular means shown comprises a weighted lever-arm 23, suspended from the end of the music-controlling lever 20 by a cord 22, or it may be suspended by a light chain, wire or other suitable hanger; so that the weight 25 carried by the end of the lever 23 is thereby suspended in a normally elevated position. The suspension cord 22 is preferably attached to the lever 23 nearer its fulcrum 24 than the weight, which gives a wider range of movement for the latter. Normally the music-controlling lever 20 sustains the weight 25 in the position shown in Figs. 1 and 3, but when, in the course of rotation of the cam-disk 5, the pin 21 drops into the notch 8, thereby letting the lever 20 fall, the weight 25 is dropped upon the actuator or releasing instrumentality of the music-player. It will be observed in Fig. 1 that the arrangement is such that the notch 8 will come into position to allow the music-controlling lever 20 to drop the instant after the alarm is sounded; for the drawing shows the pin 21 of said lever just approaching and about to drop



into the notch 8, while the end 9 of the alarm-controlling lever 10 has already just dropped into its notch 7. This relation may however be modified.

As previously stated, the music-player M may comprise any suitable or well-known type of mechanical music or chime-producing instrumentality. I have shown conventionally the well-known toothed cylinder and comb machine, such as used in ordinary music-boxes, where a revolving toothed cylinder 26, actuated by a motive spring 27, picks the vibrating tongues 28 of a comb 29. The spring-pressed releasing-lever 31 of this mechanism has a tail-piece or handle 30 upon which the weight 25 falls to release the music-player. Said releasing lever 31 carries a finger 32 which engages in a notch 33 in the side of the gear 34 on the end of the cylinder-shaft, thereby holding the music-player normally inactive. When however the weight 25 falls upon the tail or handle 30 of the releasing lever 31, the finger 32 is withdrawn from the notch 33, and the music-player being thus released is set in motion. The instant the handle 30 of the releasing-lever 31 is pressed down to release the music-player, a spring-pressed pawl 35 snaps under the notched forward end 36 of the lever, to hold it in release position. The handle 30 of the releasing lever may also have a cord 37 attached thereto and depending through a hole in the bottom of the clock-case for starting the music-player at will.

It is deemed unnecessary to explain further details of the music-player, which are well understood by those familiar with the art, and it being also understood that the particular character of music-player is non-essential for the purpose of my present invention.

With only the elements already described, it is obvious that there would be no means of regulating or adjusting the timing of the music, which would always play at exactly the same instant relative to the sounding of the alarm, that is at the moment when the notch 8 of the cam-disk 5 comes into position to let fall the music-controlling lever 20. In order to provide for such regulating or adjustment as may be necessary or desired, I therefore provide the further instrumentalities now to be described.

On the back plate of the clock-movement, is shown the usual space-wheel 38 of the hour-striking mechanism, and the dog 39 of the striker-release lever (not shown). Said space-wheel 38, as well understood by those skilled in the art, moves intermittently at the striking of the hours, determining the number of strikes of the hammer *g* upon the gong *G* by the spacing between the notches of the space-wheel, so that said space-wheel makes one complete rotation in twelve hours.

Adjustably affixed on the face of this space-wheel 38 is another cam-disk 40, having a deep angular notch 41 in its periphery, somewhat similar to the notch 8 in the other cam-disk 5. Said cam-disk 40 is shown placed against the face of the space-wheel or its hub, and held frictionally thereagainst by a thin plate of spring-metal 42 which is slotted or bifurcated to straddle the shaft and is entered tightly between the face or hub of the cam-disk 40 and a washer 43, the latter being held in place on the shaft by a pin or otherwise. This frictional mounting of the cam-disk 40 on the face of the space-wheel holds it stiff enough to maintain its proper position while yet permitting it to be angularly adjusted.

The music-controlling lever 20, on the front plate of the clock-movement, is rigidly-mounted on a rock-shaft 44, which extends through the two plates *P* and carries on its opposite end a rigid lever or lever-arm 45. This latter lever 45 is arranged with its free end resting upon the periphery of the cam-disk 40, so that it is normally sustained in an elevated position but is allowed to drop down into the notch 41 once during each rotation of the space-wheel. By this means, it will be observed that the angular adjustment of the cam-disk 40 will determine the exact period at which the music-controlling lever 20 will be allowed to fall; because, when the notch 8 of the front cam-disk 5 is in position to receive the pin 21 on the lever 20, yet said lever 20 cannot fall unless the co-fulcrumed lever 45 with which it is connected is at the same time allowed to drop into the notch 41 of the cam-disk 40. Hence, if the notches 8 and 41 of the two cam-disks are arranged to drop the two levers simultaneously, the music-player M will start as soon as the notch 8 of the cam-wheel 5 comes under the pin 21 of the music-controlling lever 20; but the playing of the music may be delayed for some moments by setting the cam-disk 40 so that its notch 41 will not come into position to drop the lever 45 until a little later time. By this means, provision is afforded for accurate adjusting of the time for starting the music.

In a preferred adjustment, as shown in the drawings, the notch 8 of the cam-disk 5 will come under the supporting pin 21 of the music-controlling lever 20 just after the sounding of the alarm, and just prior to the striking of the hour (as for example the hour of eleven about to be struck), but while the opposite lever 45 is still supported upon the normal periphery of the cam-disk 40 in position ready to drop in the notch 41 when the said cam-disk 40 makes its next intermittent movement with the space wheel 38. Then, when the hour is struck, the intermittent movement of the space-wheel 38 will turn the cam-disk 40 so as to bring its notch



41 into position to drop said lever 45, preferably just at the last stroke of the hour, thereby allowing the music-controlling lever 20 to fall and drop the weight 25 for starting the playing of the music, as previously described. The continued working of the clock will of course lift the music-controlling lever 20, whose pin 21 will ride up the rear incline of the notch 8 and onto the normal periphery of the cam-disk 5, and thereby elevate the weight 25 ready for repeating the operation at the corresponding time twenty-four hours later, during which period the alarm and music-player will of course have been wound up.

The operation will be more clearly understood by reference to Figs. 5 to 7, showing the mechanism diagrammatically. In Fig. 5, the end 9 of the alarm-controlling lever 10 has just been dropped into the notch 7 of the cam-flange 6, thereby releasing the alarm; and the notch 8 is just about to come under the pin 21 of the music-controlling lever 20, so as to permit the latter to fall. The dog 39 of the striker-release lever sets in the notch of the space-wheel 38 next preceding the eleven o'clock space; and the lever 45 is supported on the normal periphery of the cam-disk 40.

In Fig. 6, where the first cam-disk 5 has brought its notch 8 under the pin 21, the eleven o'clock hour is being struck, the eleven o'clock space of the space-wheel 38 traveling under the dog 39 of the striking-release lever. The notch 41 of the disk 40 is approaching position to drop the lever 45, which however is still supported on the normal periphery of the cam-disk 40, and thereby holds the music-controlling lever 20 in its elevated position, and prevents the weight 25 from falling to start the music.

In Fig. 7, the last stroke of the hour has been made, the dog 39 of the striking-release lever having fallen into the next notch of the space-wheel 38, and the lever 45 is dropped into the notch 41, thereby allowing the music-controlling lever 20 to fall and drop the weight 25 upon the releasing instrumentality of the music-player.

If it should be desired to dispense with the striking of the hours, a suitable disk or wheel may be substituted for the space-wheel 38, and geared to revolve either intermittently or continuously once in twelve or twenty-four hours, and such disk would of course afford means for regulation as above described; the space-wheel for the hour-striking being conveniently utilized however so that the invention may aptly be applied to ordinary clock-works without requiring addition or change in the mechanism.

In the following claims, the terms "alarm" and "alarm-sounding mechanism" are intended to refer to any suitable type of alarm, whether the sound is produced by the strik-

ing of a bell or otherwise; and the term "music-player" is intended to designate any mechanically operated instrument for producing musical tones.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a clock having an alarm, a cam-disk geared with the clock-movement and having a face-flange provided with a notch, said cam disk being immovable in an axial direction, and an alarm-controlling lever intermediately fulcrumed and arranged with one end bearing upon said flange, whereby the opposite end of said lever is held by said cam disk normally in position to afford an alarm-stop, and when said notch comes under said lever the latter moves to alarm-releasing position.

2. In a clock having a mechanical music-player, a cam geared with the clock-movement, and a music-controlling lever controlled by said cam and operatively-connected with means for starting the music-player, and a second cam adjustable angularly and also controlling said lever.

3. In a clock having a music-player, a music-controlling lever operatively-connected with means for operating said music-player, a second lever connected therewith, cams respectively controlling said levers, one of said cams being angularly-adjustable for regulating the timing of operation of said music-player.

4. In a clock having a music-player, a cam-disk geared with the clock-movement and having a peripheral notch, a music-controlling lever supported in one position by said disk and adapted to be dropped by said notch, a second lever connected with the first, a second cam-disk geared with the clock-movement but angularly adjustable, said second cam-disk having a notch and similarly supporting in one position said second lever, whereby the music-controlling lever can fall only when both notches are in position to drop both levers, and means connected with said music-controlling lever for operating said music-player.

5. In a clock having an alarm and a mechanical music-player, an alarm-controlling instrumentality, a music-controlling instrumentality, means geared with the clock-movement controlling both instrumentalities for setting the music-player in operation at a determined period relative to the sounding of the alarm, and further means geared with the clock-work for controlling said music-controlling instrumentality and adapted to be adjusted to regulate the period of operating said music-player.

6. In a clock having an alarm and a mechanical music-player, and a striking-mechanism including an intermittently rotating space-wheel, the combination of an alarm-



controlling instrumentality, means for releasing the same, a music-controlling instrumentality, and means adjustable on said space-wheel for controlling the same.

7. In a clock having a mechanical music-player, a music-controlling lever, a cam controlling the same, the intermittently-rotating space-wheel of a striking-mechanism,

and an adjustable cam on said space-wheel also controlling said lever.

In testimony whereof I affix my signature, in presence of two witnesses.

VICTOR M. A. BOGAERT.

Witnesses:

F. W. FIEDER, Jr.,

H. H. PETTINGER.

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