

April 21, 1925.

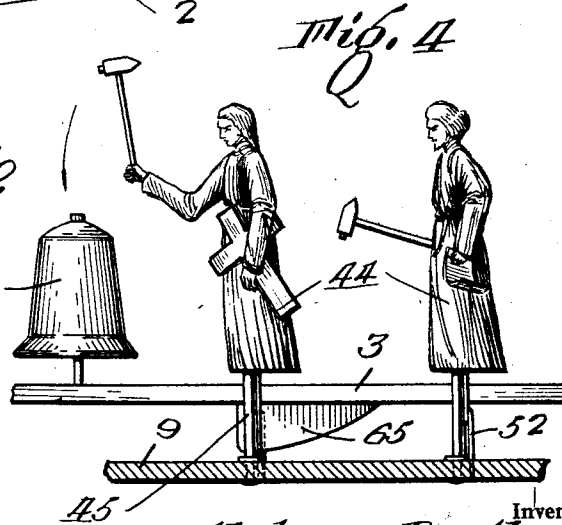
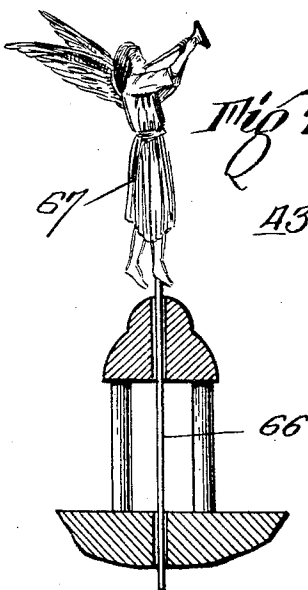
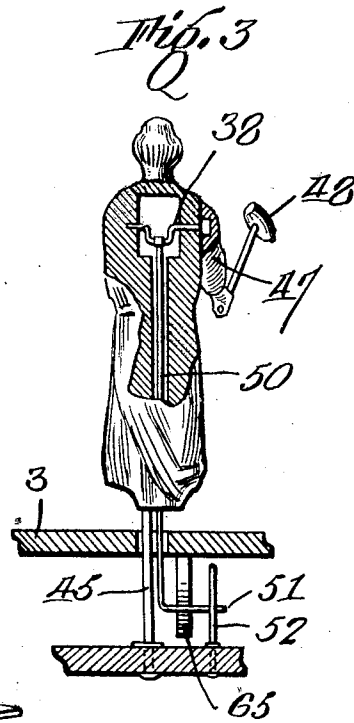
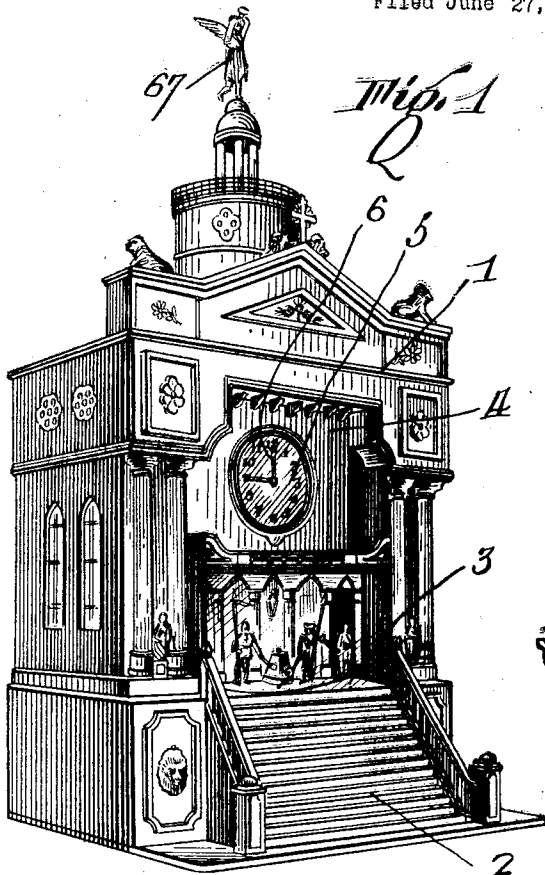
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A. BONTHOUX

ORNAMENTAL CLOCK

Filed June 27, 1924

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

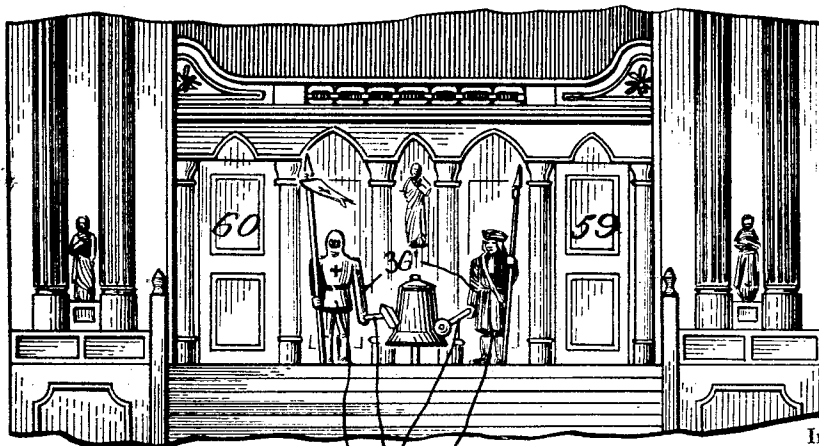
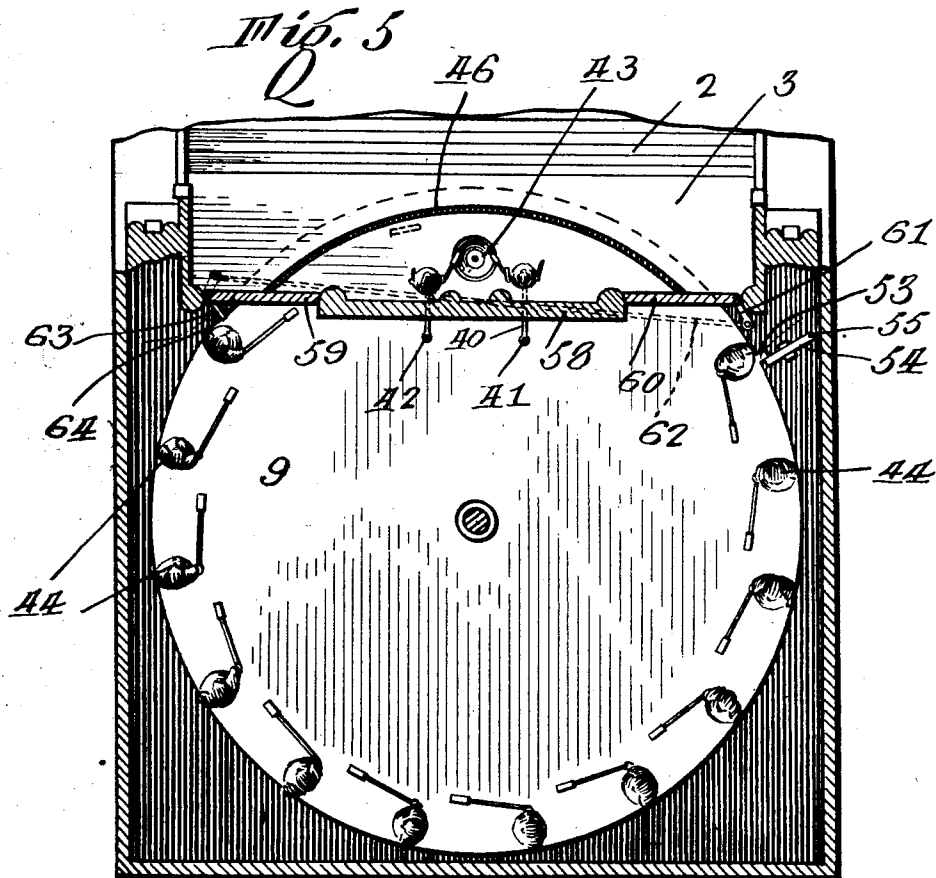


Fig. 6
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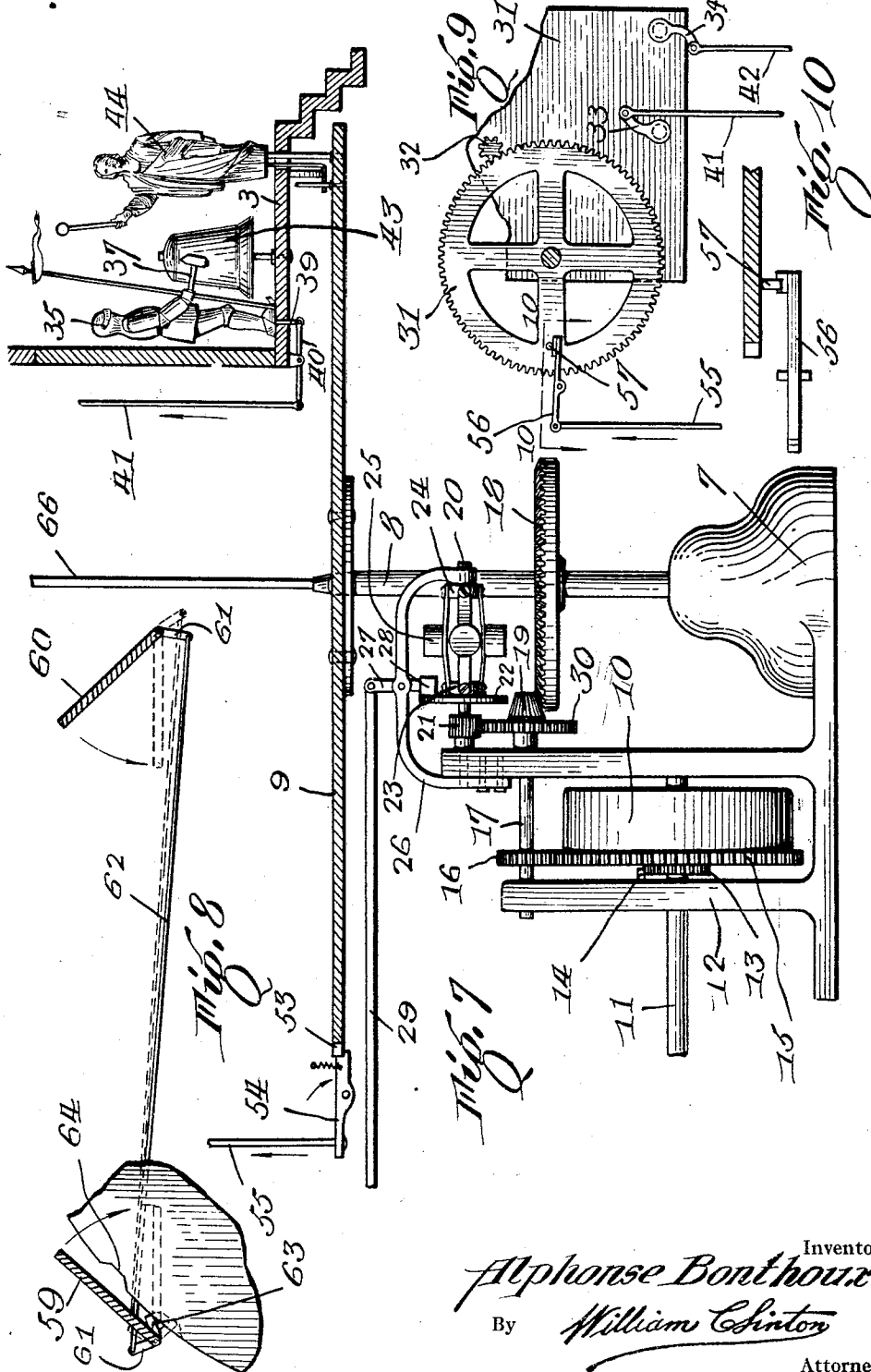
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ORNAMENTAL CLOCK

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

ALPHONSE BONTHOUX, OF DUCK LAKE, SASKATCHEWAN, CANADA.

ORNAMENTAL CLOCK.

Application filed June 27, 1924. Serial No. 722,784.

To all whom it may concern:

Be it known that I, ALPHONSE BONTHOUX, a subject of the King of Great Britain, residing at Duck Lake, Province of Saskatchewan, Canada, have invented certain new and useful Improvements in Ornamental Clocks; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention pertains to a novel ornamental clock designed to produce interesting and pleasant effects at determined intervals.

The clock housing is constructed in the form of a miniature cathedral having a floor on which is mounted a bell. At the sides of the bell are a pair of images representing a knight and a Swiss guard, each having a pivoted arm carrying a hammer adapted to strike the bell. The mechanism for operating the clock hands includes a large gear and a pair of cranks revolving once an hour and always having an angular relation of 180°. From each of the above mentioned pivoted arms extends a linkage to one of the cranks, whereby the respective hammers are caused to strike the bell at definite intervals. Since the cranks make one revolution an hour and are always at 180° to each other, one of the images strikes the bell on the hour while the other image strikes on the half hour.

The invention further includes a turntable within the housing on which are mounted twelve images representing the twelve apostles. The table is operated from a spring motor, but is normally locked against rotation by means of a locking finger. Each of the apostle images also includes a pivoted arm carrying a hammer, and the images are adapted to pass in front of the bell. Within each image is provided a crank connected to the pivoted arm, from which crank extends a stem having a hooked end. The floor of the housing supports a cam on its lower surface and near the bell. This cam is engageable by the hooked ends of the stems as the images pass during the rotation of the table. The hammers are thus raised and allowed to drop upon the bell, whereby twelve strokes are effected during one revolution of the table.

The above mentioned gear of the clock

mechanism carries a single pin adapted to actuate a linkage extending from the locking finger. Since this gear is preferably adjusted to make one revolution in twelve hours, the turntable may be released only once in twelve hours. The pin is preferably so placed on the gear that the revolution will occur at twelve o'clock noon and midnight.

At the rear edge of the floor is a wall in which are formed a pair of doors and through which doors the images are adapted to pass. These doors are normally closed, but one of them carries an opening device connected to the table and operated upon movement of the latter. The two doors are so connected that they move simultaneously, whereby both doors are opened when the table begins to move. When the table has completed its revolution, it is again locked by the locking finger, and the doors return to closed position.

The invention is fully disclosed in the following description and in the accompanying drawings in which:

Figure 1 is a perspective view of the device;

Figure 2 is a fragmentary section, partly in elevation, through the top thereof;

Figure 3 is a sectional view, partly in elevation, through one of the revolving images;

Figure 4 is a detail elevation showing the turntable in section;

Figure 5 is a horizontal section, showing the turntable in plan;

Figure 6 is an enlarged detail front elevation;

Figure 7 is a fragmentary longitudinal vertical section, showing the turntable revolving mechanism in elevation;

Figure 8 is a detail of Figure 5, showing the doors opened;

Figure 9 is a detail of the clock mechanism; and,

Figure 10 is an enlarged section on the line 10—10 of Figure 9.

Reference will now be made to these views by means of like characters which are employed to designate corresponding parts throughout.

The device comprises a housing 1 which is constructed as a miniature cathedral. At the front thereof is a flight of stairs 2 leading to a main floor 3. The front wall 4 is

provided with a clock face 5, the hands 6 of which are actuated by mechanism within the housing.

The floor extends only a short distance rearwardly of the stairs, as may be seen from Figure 7. In the bottom of the housing is provided a frame 7 in which is journaled an upright shaft 8. To this member is secured a turntable 9, the diameter of which is substantially equal to the width of the building. The table projects partially beneath the floor 3, as shown in Figure 7. It is operated from a spring motor 10 supported on a shaft 11 journaled in standards 12 forming part of the frame. The shaft carries a pinion 13 adapted to be locked by a pawl 14 extending from one of the standards 12. The shaft may be turned by hand for winding the motor. The motor includes a large gear 15 meshing with a pinion 16 carried by a shaft 17 also journaled in the standards 12. The shaft 8 carries a bevel gear 18 which is engaged by a bevel pinion 19 at one end of the shaft 17. One of the arms 12 carries a governor mechanism which includes a spindle 20 on which are mounted a pinion 21, a slidable friction disc 22, a collar 23 fixed to the disc, a collar 24, and expansion weights 25 connected to the two collars. The outer end of the spindle is journaled in a curved bearing 26 extending from the last mentioned standard 12. To this bearing is pivoted an arm 27 carrying a friction block 28 adapted to engage the disc 22. From the arms extends a link 29 which may be adjusted to determine the position of the block 28 with reference to the length of the spindle 20. The shaft 17 carries a small gear 30 meshing with the pinion 21. As the speed of the motor increases, the devices 25 expand and bring the friction disc against the block 28, whereby the speed is reduced. Obviously, the mechanism speed attainable by the motor is determined by the adjustment of the block 28.

The mechanism for operating the clock may be of conventional construction except that it includes a large gear 31 driven by a pinion 32 having one-twelfth as many teeth. In the present instance there are eighty-four teeth on the large gear and seven teeth on the pinion. The clockwork frame 31' carries a pair of pivoted cranks 33 and 34 actuated by the clockwork mechanism and so arranged as always to lie at 180° to each other.

The floor 3 supports two fixed images 35 and 36 (Fig. 6) representing a knight and a Swiss guard respectively. Each image is provided with a pivoted arm 36' carrying a striking hammer 37. Within the body of each image is journaled a crank 38 fixed to the arm and adapted to turn it. From the crank extends a link 39, the lower end of which is engaged by a lever 40 pivoted inter-

mediate its ends to the bottom of the floor, as shown in Figure 7. From the remaining ends of the two levers 40, associated with the knight and guard respectively, extend connecting rods 41 and 42. These rods are pivoted to the cranks 33 and 34 respectively. Between the images 35 and 36, the floor supports a bell 43 in the path of the hammers 37. The clockwork is so adjusted that the crank 33 pulls the rod 41 on the half hour. The arm and hammer of the knight are thus lowered, and the hammer falls on the bell. In like manner, the crank 34 pulls the rod 42 on the hour, causing the hammer of the guard to strike the bell.

The turntable carries a series of twelve images 44 representing the twelve apostles. These images are of similar construction, each being carried on a support 45. In order that the movement of the turntable, when in motion as described below, shall not be interrupted by the superposed floor, the latter is formed with an arcuate groove 46 through which the supports are adapted to pass. Each image 44 has a pivoted arm 47 (Fig. 3) carrying a hammer 48. Within each image is a crank similar to the member 38 and connected to the arm. From the crank extends a stem 50 having a lower hooked end 51 movable in a guide 52 carried by the table.

From the periphery of the table 9 extends a tooth 53 engaging a finger 54 suitably pivoted within the housing, as shown in Figure 5. From the finger extends a rod 55 connected to a lever 56 pivoted near the large gear 31, as shown in Figure 9. The gear carries a single pin 57 adapted to tilt the lever 56, so that the finger 54 is released from the tooth 53 on the twelfth hour. The turntable is then free to rotate.

At the rear edge of the floor 3 is a wall 58 in which are provided doors 59 and 60. These doors are hinged at the outer edges and are provided each with a rigidly attached finger 61, the two fingers being connected by a link 62. One of the doors also carries a second finger 63 engageable in a notch 64 formed in the periphery of the table, as shown in Figure 8. Consequently, when the table begins to turn, the finger 63 is pushed forwardly to swing the doors 59 open, while the door 60 is likewise opened due to its connection to the door 59 by means of the fingers 61 and link 62. During the rotation of the table the finger 63 is maintained in engagement with the periphery of the table, the doors being held open until the notch 64 returns to receive the finger 63.

A cam 65 is secured to the lower surface of the floor 3 slightly in advance and forwardly of the bell 43. The cam is so positioned as to be engageable by the hooks 51 in passing. As each hook engages the cam, the corresponding stem 50 is pulled down-

wardly, whereby the corresponding hammer 48 is raised. When the hook passes beyond the cam, the hammer is free to drop upon the bell.

5 The shaft 8 is extended upwardly to the top of the housing 1 in a stem 66 which carries an image 67 representing an angel. This figure makes a revolution every twelfth hour, with the movement of the apostle
10 images, when the turntable is released and the shaft 8 allowed to rotate.

While a specific embodiment of the invention has been illustrated and described, it is to be understood that various alterations in the details of construction may be made without departing from the spirit of the invention as indicated by the appended claims.

20 Having thus fully described the invention, what I claim as new and desire to protect by Letters Patent is:—

1. An ornamental clock comprising a housing, a clock face and hands supported thereby, a floor within the housing, a bell
25 mounted on the floor, a turntable mounted within the housing, a spring motor adapted to rotate said table, a plurality of images mounted on said table, each image including a pivoted arm and a hammer carried in said
30 arm, and means adjacent said bell for causing said hammers to be dropped upon it as the images pass.

2. An ornamental clock comprising a housing, a clock face and hands supported thereby, a floor within the housing, a bell
35 mounted on the floor, a turntable mounted within the housing, a spring motor adapted to rotate said table, a plurality of images mounted on said table, each image including a pivoted arm, a hammer carried thereby
40 and adapted to strike the bell, an interior crank connected to the arm, a stem extending from the crank, a cam supported by the floor adjacent the bell and adapted to actuate the hammers as the images approach the
45 bell.

3. An ornamental clock comprising a housing, a clock face and hands supported thereby, a floor within the housing, a bell
50 mounted on the floor, a turntable mounted within the housing, a spring motor adapted to rotate said table, a plurality of images mounted on said table, each image including a pivoted arm, a hammer carried thereby
55 and adapted to strike the bell, an interior crank connected to the arm, a stem extending from said crank, said stem having a hooked end, and a cam supported by the floor adjacent said bell and adapted for engagement by the hooked ends to rotate the
60 hammers as the images approach the bell.

4. An ornamental clock comprising a housing, a clock face and hands supported thereby, a floor within the housing, a bell
65 mounted on the floor, a turntable mounted

within the housing, a spring motor adapted to rotate said table, a plurality of images mounted on said table, each image including a pivoted arm and a hammer carried in said arm, means adjacent said bell for causing
70 said hammers to be dropped upon it as the images pass, a locking finger for normally holding said table against rotation, a clock mechanism for actuating the hands and including a large gear, a linkage extending
75 from said locking finger, and a pin carried by the gear and adapted to actuate said linkage to release the locking finger.

5. An ornamental clock comprising a housing, a clock face and hands supported thereby, a floor within the housing, a bell mounted on the floor, a turntable mounted within the housing, a spring motor adapted to rotate
80 said table, a plurality of images mounted on said table, each image including a pivoted arm and a hammer carried in said arm, means adjacent said bell for causing said hammers to be dropped upon it as the images pass, a locking finger for normally holding
85 said table against rotation, a clock mechanism for actuating said hands and including a large gear adapted to make a complete revolution in twelve hours, a pin carried by said gear, and a linkage extending from the locking finger and engageable by said
90 pin to release the turntable.

6. An ornamental clock comprising a housing, a clock face and hands supported thereby, a floor within the housing, a bell
100 mounted on the floor, a turntable mounted within the housing, a spring motor adapted to rotate said table, a plurality of images mounted on said table, each image including a pivoted arm and a hammer carried in said arm, means adjacent said bell for causing
105 said hammers to be dropped upon it as the images pass, an image mounted on said floor and also including a pivoted arm and a hammer adapted to strike the bell, a clock mechanism for actuating said hands and including a large gear, a rotatable crank included in the clock mechanism, and a linkage extending from said last named pivoted
110 arm to said last named crank, whereby said last named hammer is caused to strike the bell at definite intervals.

7. An ornamental clock comprising a housing, a clock face and hands supported thereby, a floor within the housing, a bell mounted on the floor, a turntable mounted within
120 the housing, a spring motor adapted to rotate said table, a plurality of images mounted on said table, each image including a pivoted arm and a hammer carried in said arm, means adjacent said bell for causing said hammers to be dropped upon it as the images
125 pass, a locking finger for normally holding said table against rotation, a clock mechanism for actuating the hands and including a large gear, a linkage extending from said
130

locking finger, a pin carried by the gear and adapted to actuate said linkage to release the locking finger, a pair of doors mounted on said floor and arranged above the turntable and adapted for the passage of the images therethrough, a device for opening said doors, said device engaging the table and actuated by the movement thereof.

8. An ornamental clock comprising a housing, a clock face and hands supported thereby, a floor within the housing, a bell mounted on the floor, a turntable mounted within the housing, a spring motor adapted to rotate said table, a plurality of images mounted on said table, each image including a pivoted arm and a hammer carried in said arm, means adjacent said bell for causing said hammers to be dropped upon it as the images pass, a locking finger for normally holding said table against rotation, a clock mechanism for actuating the hands and including a large gear, a linkage extending from said locking finger, a pin carried by the gear and adapted to actuate said linkage to release the locking finger, a pair of doors mounted on said floor and arranged above the turntable and adapted for the passage of the images therethrough, a finger extending from one of said doors, said table having a notch formed in its edge for receiving said finger, whereby said door is opened upon movement of the table, and an operative connection between said door and the remaining door for simultaneously opening the latter.

9. An ornamental clock comprising a housing, a clock face and hands supported thereby, a floor within the housing, a bell mounted on the floor, a turntable mounted within the housing, a spring motor adapted to rotate said table, a plurality of images mounted on said table, each image including a pivoted arm and a hammer carried in said arm, means adjacent said bell for causing said hammers to be dropped upon it as the images pass, a locking finger for normally holding said table against rotation, a clock mechanism for actuating the hands and including a large gear, a linkage extending from said locking finger, a pin carried by the gear and adapted to actuate said linkage to release the locking finger, a pair of doors mounted on said floor and arranged above the turntable and adapted for the passage of the images there through, a finger extending from one of said doors, said table having a notch formed in its edge for receiving said finger, whereby said door is opened upon movement of the table, additional fingers extending from each of said doors, and a link connecting said last named fingers, whereby the doors are simultaneously opened upon movement of the table.

In witness whereof I have hereunto set my hand.

ALPHONSE BONTHOUX.

Witnesses:

M. COMCHAU,
JAS. M. POZER.