

June 24, 1930.

P. LUX

1,767,183

ALARM CLOCK

Filed Nov. 22, 1927

2 Sheets-Sheet 1

Fig. 1.

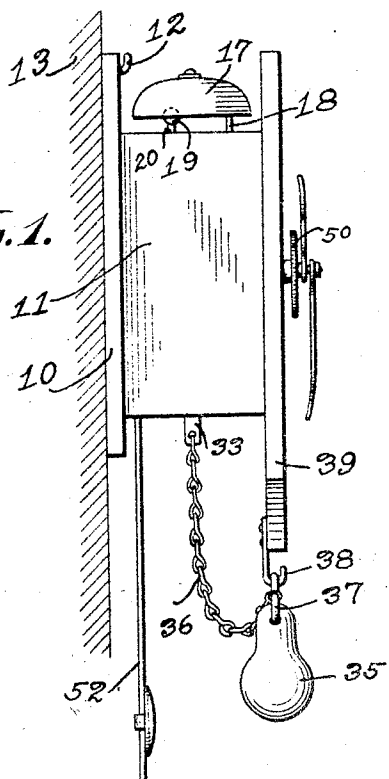


Fig. 2.

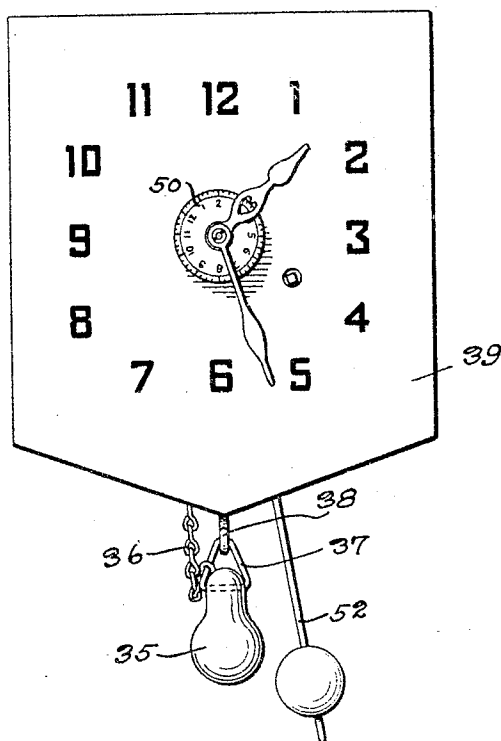
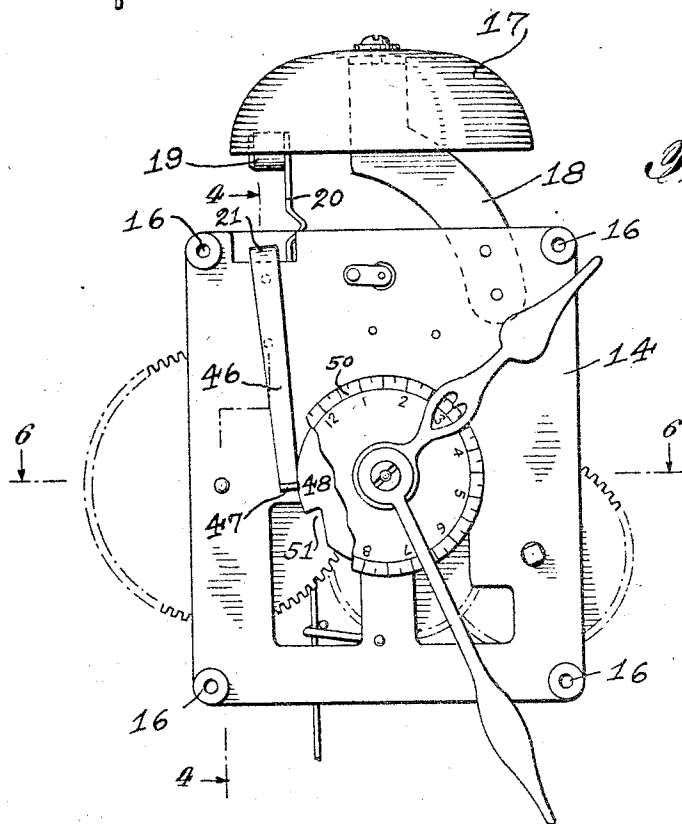


Fig. 3.



INVENTOR
Paul Lux
 BY *H. J. Manning*
 ATTORNEY

UNITED STATES PATENT OFFICE

PAUL LUX, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE LUX CLOCK MANUFACTURING COMPANY, OF WATERBURY, CONNECTICUT, A CORPORATION OF CONNECTICUT

ALARM CLOCK

Application filed November 22, 1927. Serial No. 234,988.

This invention relates to alarm clocks, and more particularly to one in which the alarm mechanism is driven by a weight motor.

One object of this invention is to provide an alarm clock of the above nature in which it will be possible to tell at a glance whether the alarm is set, this fact being indicated when the weight is hanging by its cord.

A further object of this invention is to provide an alarm clock of the above nature in which the weight-supporting cord or tape is provided with a spring take-up for automatically rewinding it when the weight is raised by the user.

A further object is to provide a device of this nature which will be simple in construction, inexpensive to manufacture, easy to manipulate, compact, ornamental in appearance, and very efficient and durable in use.

With these and other objects in view there has been illustrated on the accompanying drawings, one form in which the invention may be conveniently embodied in practice.

Fig. 1 represents a side view of the assembled alarm clock as it appears with the alarm in inactive position, said clock being shown supported upon a wall.

Fig. 2 is a front view of the alarm clock.

Fig. 3 is a front view of the same on an enlarged scale with the clock face removed and the setting dial broken away in order to show the alarm-operating cam.

Fig. 4 is a side sectional view of the clock showing the interior operating mechanism.

Fig. 5 is a fragmentary rear view of the alarm clock showing the rewinding mechanism for the weight-supporting cord.

Fig. 6 is a sectional view of a portion of the clock mechanism showing the alarm-setting dial and cam.

Referring now to the drawings in which like reference numerals denote corresponding parts throughout the several views, the numeral 10 indicates a rear plate adapted to support a clock casing 11 from a hook 12 secured to a wall 13. The clock casing 11 is provided with front and rear frames 14

and 15 rigidly secured together by the usual corner posts 16.

Provision is made of an alarm bell 17 secured by an angular bracket 18 to the front frame 14, said bell 17 being adapted to be intermittently sounded by a hammer 19 secured on the upper free end of a resilient metal arm 20 carried by an escapement lever 21, said lever 21 having a pair of short depending teeth 22 and 23 arranged at different angles for engaging in the teeth of a ratchet wheel 24 mounted on a shaft 25. The shaft 25 has rigidly secured thereto a pinion 26 meshing with a large gear 27 rigidly mounted on a shaft 28 journaled between the front and rear frames 14 and 15.

In order to supply power for rotating the shaft 28, and consequently the gear 27, for imparting rotary motion to the ratchet wheel 24 and thereby produce a sustained vibratory motion of the escapement lever 21 and the bell hammer 19, provision is made of a spool member 29 journaled upon a shaft 28 and having a radial flange 30 lying in contact with the face of the large gear 27. Projecting rearwardly from the radial flange of the spool 29 is an annular collar 31 having an out-turned flange 32 to form an edge guide for a flat tape 33 wound upon said collar 31, as clearly shown in Fig. 4. One end of the tape 33 is bent over at 34 and connected to the collar 31 by passing said bent-over end through a slot 34^a in said collar.

The motive power for operating the alarm is supplied by a weight 35 suspended from the lower end of the tape 33 by means of a chain 36. The weight 35 is provided at its top with a triangular loop member 37 adapted to be hooked over a depending hook member 38 mounted on the lower end of a clock face 39.

In order to cause the gear 27 to rotate in the same direction as the spool 29 when the weight 35 is unwinding, said gear 27 is provided with a pawl lever 40 adapted to be pressed by a light wire spring 41 into engagement with ratchet teeth 42 on the periphery of the radial flange of the spool 29. By means of this construction it will be

evident that the falling of the weight will force the gear 27 to move with the spool 29 in an anti-clockwise direction, as viewed in Fig. 5.

5 In order to cause the tape 33 to be wound up upon the spool automatically when the operator lifts the weight 35 from its lowermost to its uppermost position and replaces it upon the hook 38, provision is made of a
10 coil spring 43 preferably constructed of light wire, said coil spring 43 being secured at one end 44 to the rear frame 15 and at its other end 45 to the radial flange of said spool 29.

15 In order to prevent the hammer 19 from striking the bell 17 before the arrival of the hour for which the alarm has been set, the escapement lever 21 is provided with a downwardly extending arm 46 having a
20 forwardly extending lug 47 on its lower end, said lug 47 lying in contact at all times with a slowly turning circular cam 48. The cam 48 has a central collar 48* fitted upon the "hour" tube 49 with sufficient tightness to be carried
25 with it, but permitting adjustment thereon by the manipulation of a graduated circular setting dial 50 located on the forward end of said collar 48*. The cam 48 is provided with an angular notch 51 which allows the
30 lug 47 of the escapement lever to move thereinto when the alarm hour arrives, so as to no longer restrain the vibration of the escapement lever 21.

The time-keeping mechanism of the clock
35 is controlled by a pendulum 52 suspended from a hook 53 located in the rear of the clock frame 15, said pendulum being driven by means of the usual train of gears and a main spring 54, and being controlled by the
40 usual escapement mechanism, not shown.

In operation, when the user desires to set the alarm, it is merely necessary for him to lift the weight 35 from the hook 38, and
45 allow the weight to hang by the chain 36, thereby placing the tape 33 under tension. The alarm will be prevented from operating at this time by reason of the fact that the lug 47 on the arm 46 of the escapement lever will engage the circular outer periphery of
50 the cam 48. The operator will then set the index dial 50 to the hour at which the alarm is desired.

When the time-keeping mechanism indicates the hour for the alarm, the angular
55 slot 51 will come into alinement with the lug 47 permitting the latter to move freely into and out of said slot 51 under the influence of the weight-operated tape 33. The alarm will continue to sound until the tape
60 has been completely unwound.

In order to render the alarm inoperative, it will then be merely necessary for the operator to raise the weight 35, whereupon the
65 rewinding spring 43 will come into action, causing the tape 33 to be wound up upon

the spool 29 automatically as fast as the weight is raised. The operator will then hang the weight upon the hook 38 until such time as it is desired again to put the alarm into operation.

70 While there has been disclosed in this specification one form in which the invention may be embodied, it is to be understood that this form is shown for the purpose of illustration only, and that the invention is not
75 to be limited to the specific disclosure but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming
80 within the scope of the following claims.

Having thus fully described the invention, what is claimed as new, and for which it is desired to secure Letters Patent, is:

1. In an alarm clock, a cam, a time-keeping
85 mechanism for slowly rotating said cam, a bell, a vibratory lever for sounding said bell to give the alarm, said cam normally holding said vibratory lever out of action,
90 a line-suspended weight for supplying the power to vibrate said lever, and a take-up spring for rewinding said line when the operator raises said weight, and means for suspending said weight out of action.

2. In an alarm clock, a cam having a slot,
95 time-keeping mechanism for slowly rotating said cam, an alarm-sounding lever having a depending arm adapted to ride on the periphery of said cam and to enter said slot for sounding the alarm, a line-supported
100 weight-operated means for vibrating said alarm-sounding lever while its depending arm is alined with said slot, and a light-spring-operated take-up means for automatically rewinding said line when the operator
105 raises said weight to reset the alarm, and means for suspending said weight out of action.

3. In an alarm clock, a gear, time-keeping
110 mechanism for slowly rotating said gear, a drum, a line wound upon said drum, the periphery of said drum having ratchet teeth, a spring-pressed pawl lever pivoted on said gear and engaging said teeth for preventing
115 said drum from rotating with respect to said gear except in one direction, a weight suspended from said line, an escapement-controlled alarm-sounding mechanism driven by said line, and means for automatically re-
120 winding said line when the weight is manually raised to its initial uppermost position, and means for suspending said weight out of action.

4. In an alarm clock, a gear, time-keeping
125 mechanism for slowly rotating said gear, a drum, a line wound upon said drum, the periphery of said drum having ratchet teeth, a spring-pressed pawl lever pivoted on said gear and engaging said teeth for preventing
130 said drum from rotating with respect to said

gear except in one direction, a weight suspended from said line, an escapement lever having an upwardly-extending alarm sounding arm, said escapement lever having a pair of downwardly extending fingers, an idle ratchet wheel for successively engaging said fingers to permit continuous vibration of said lever under the power supplied by said weight, and means for automatically rewinding said line when the weight is manually raised to its initial uppermost position, and means for suspending said weight out of action.

In testimony whereof, I have affixed my signature to this specification.

PAUL LUX.

20

25

30

35

40

45

50

55

60

65