

F. HARDINGE.
WATCHMAN'S CLOCK.
APPLICATION FILED JUNE 18, 1910.

1,016,688.

Patented Feb. 6, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

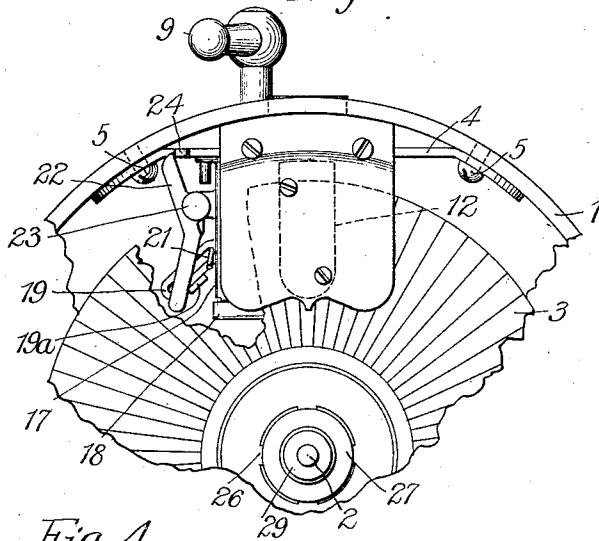


Fig. 4.

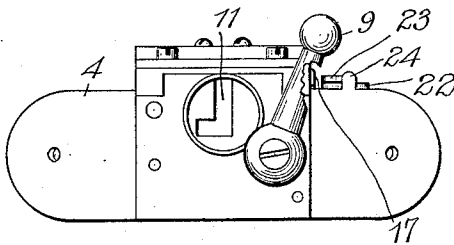


Fig. 2.

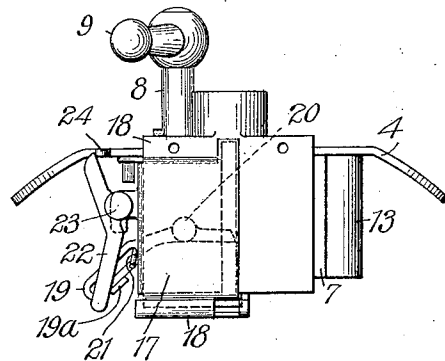


Fig. 3.

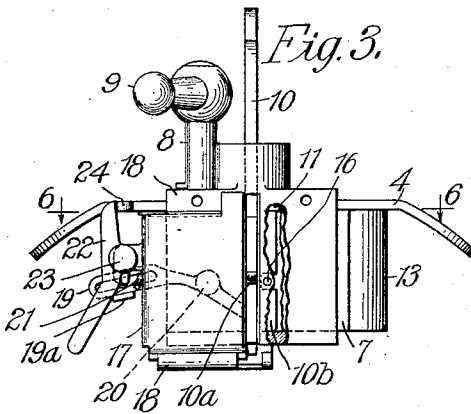
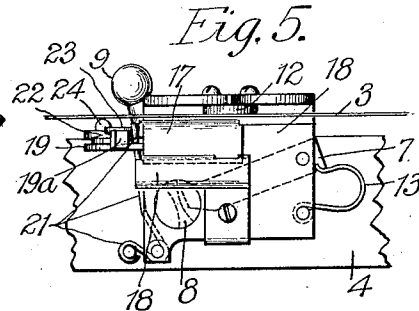


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 8.

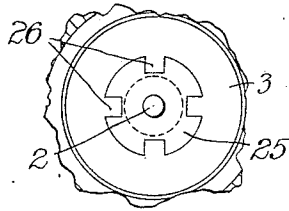


Fig. 9.

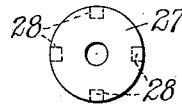


Fig. 10.

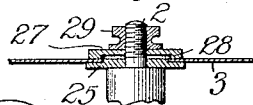


Fig. 11.

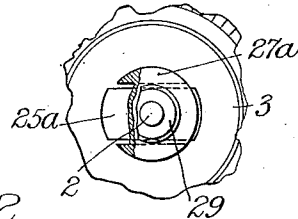


Fig. 13.

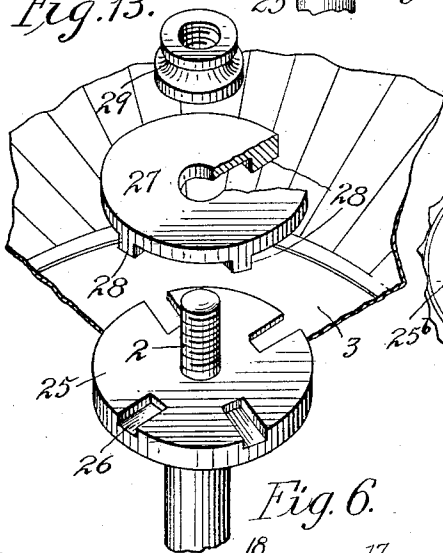


Fig. 12.

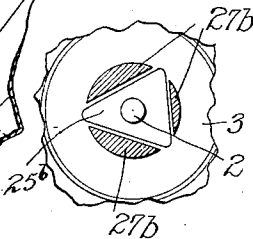


Fig. 6.

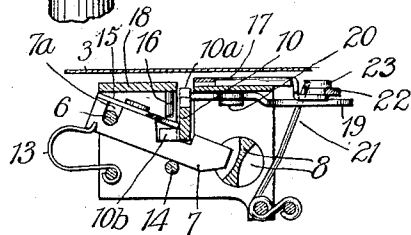
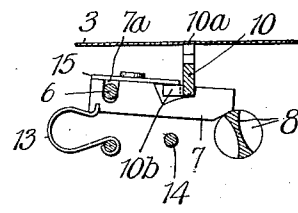


Fig. 7.



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WATCHMAN'S CLOCK.

1,016,688.

Specification of Letters Patent.

Patented Feb. 6, 1912.

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To all whom it may concern:

Be it known that I, FRANKLIN HARDINGE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Watchmen's Clocks, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to an improved form of watchman's clock adapted to make a characteristic record upon record receiving means contained in the clock when actuated in connection with marking mechanism usually located at various points in the building or territory to be covered by the watchman.

My invention consists particularly in providing improved mechanism for so receiving the marking members or keys that when the recording mechanism is actuated the character is forced into engagement positively with the record receiving disk and at the same time held yieldingly in such engagement by a suitable spring which not only serves to compensate for wear of the parts, but also serves to return the key and its carrying mechanism to normal position at the close of the recording operation.

My invention further consists in an improved shutter mechanism normally disposed between the record receiving means and the marking device, such shutter being so arranged as to be moved out of the path of the marking device by its insertion into the watchman's clock.

My invention also provides an improved means for driving the record disk which requires a special conformation of disk to engage the driving member in connection with which suitable clamping means are used to secure the disk in place, such clamping means being so conformed as to engage the disk wholly within the outer periphery of the driving member to prevent the use of disks in connection with the clock which are not adapted for the purpose.

The several drawings illustrating my invention are as follows: Figure 1 is a face view of a portion of the clock showing a record disk in place. Fig. 2 is a view similar to Fig. 1 of the recording mechanism. Fig. 3 is a view similar to Fig. 2 showing a

key in place in the recording mechanism. Fig. 4 is a view of the parts shown in Fig. 2 looking at the end of the key way and operating member. Fig. 5 is a view of the parts shown in Fig. 2 taken from the opposite direction to Fig. 4. Fig. 6 is a sectional view of the parts shown in Fig. 3 taken along the line 6—6. Fig. 7 is a view of the recording mechanism shown in Fig. 6 moved to its actuated position. Fig. 8 is a detail view of a portion of the record sheet and the member used to drive the same. Fig. 9 is a detail view of a clamping member used in connection with the driving member shown in Fig. 8. Fig. 10 is a sectional view through the driving member and clamping means shown in Figs. 8 and 9. Figs. 11 and 12 are detail views of modified arrangements of clamping mechanism. Fig. 13 is a perspective view of the disassembled parts shown in Fig. 10.

Similar numerals refer to similar parts throughout the several views.

As shown in Fig. 1 the clock casing 1 has centrally disposed a driving spindle 2 upon which a record disk 3 is secured by clamping means to be described. A framework 4 secured within the casing 1 by screws 5 supports the recording mechanism in a position to make a record upon the disk 3.

As shown in Figs. 2 to 5 inclusive, the framework 4 has pivotally mounted thereon at 6 a member 7 adapted to be operated by a cam shaft 8 by means of a handle 9 projecting from the framework 4 and located outside of the casing 1 of the clock. Suitable ratchet mechanism not shown is provided in the head of the handle 9 where it joins the shaft 8 so that such shaft may be rotated by an oscillatory movement of the handle 9 when the key 10 is in place in the keyway 11. For the position of the key just referred to such key is supported by the member 7 as more clearly shown in Figs. 6 and 7 and when the cam shaft 8 is rotated by means of the handle 9, the key 10 is moved against the disk 3 and serves to press such disk forcibly against the plate 12, carried by the framework 4 for that purpose. The portion 10^a of the key 10 which engages the disk 3 consists in a suitably raised letter or character as shown in Fig. 3, and thus a characteristic indication is made upon a

portion of the disk 3 corresponding to the time at which the handle 9 is actuated, since the disk 3 is driven at a uniform rate by the clockwork connected with the spindle 2.

5 The member 7 has formed in its left hand end, as shown in Figs. 6 and 7, a slot 7^a to receive the rod 6 constituting a pivot for such member and when the key 10 is brought into engagement with the disk 3 and the

10 plate 12 the cam shaft 8 serves to slightly rock the member 7 upon the key 10, thus moving the left hand end of the member 7 away from the rod 6 against the action of the spring 13 which engages the member 7

15 slightly to the left of the slot 7^a. It is to be noted that the engagement of the cam shaft 8 with the member 7 moves such member positively to bring the key into engagement with the record disk, but that the engagement is not a forced one owing to the relation of the rod 6 and the slot 7^a, the pressure exerted upon the disk 3 being due to the spring 13. When the shaft 8 is further

20 rotated to release the member 7, the spring 13 serves to return such member to its normal position against the stop pin 14. The member 7 has secured to its upper surface a plate 15 to retain the key 10 in place in such member and the framework 4 carries

30 a pin 16 to engage a suitable notch 10^b in the key 10 so that only keys of a certain series may be used in a particular clock.

From the construction above described, it will appear that the amount of flexure imparted to the spring 13 by the operation of the member 7 is comparatively small and that therefore such spring is always worked well within its elastic limit and its life may readily be made comparatively long so as

40 to give no trouble in the operation of the recording mechanism.

As shown in Figs. 2, 3 and 5 a shutter 17 is disposed in suitable guides 18 carried by the framework 4 so as to normally occupy

45 the position indicated in Fig. 2 for which position communication with the record disk 3 through the key-way 11 is prevented. A lever 19 pivoted to the framework 4 at 20 extends into the key-way 11 and is normally

50 held in the position indicated in Fig. 2 by means of a spring 21. The lever 19 is provided with a lug 19^a engaging the lever 22 pivoted to the shutter 17 at 23 and the upper end of this lever 22 engages a lug 24

55 carried by the framework 4. The parts just described are so formed that when the key 10 is inserted in the key-way 11, the end of the key engages the lever 19 and rotates it against the action of the spring 21 to the

60 position indicated in Fig. 3, such motion resulting in a rotation of the lever 22 upon its pivot 23 to move the shutter 17 to the inoperative position indicated in Fig. 3 for which position the key 10 may be moved

outward by the cam shaft 8 to make a record upon the disk 3. When the key 10 is removed from the key way 11, the spring 21 returns the shutter 17 and the associated levers 19 and 22 to the position indicated in Fig. 2.

As shown in Fig. 8 the driving spindle or shaft 2 has secured to its outer end a driving member 25 provided with a plurality of notches 26 in its periphery adapted to receive corresponding projections extending

75 from the central aperture of the disk 3. A clamping member 27 of slightly less external diameter than the outer diameter of the driving member 25 is provided with axially extending lugs 28 adapted to enter the

80 notches 26 and engage the projecting portions of the record disk 3. The clamping member 27 may be held in the position described by means of a nut 29 screwed onto the end of the spindle 2. As a result of the construction described, if the record disks

85 3 are not provided with projections for engaging the notches 26, they are not properly engaged by the clamping member 27 and thus a means is provided by which properly

90 prepared record disks must be used in connection with the clock.

In the modification shown in Fig. 11 the driving member 25^a is flattened on opposite sides instead of being notched and the

95 clamping member 27^a is provided with segmental projections to engage the disk 3 within a circle described through the outer periphery of the driving member 25^a.

In the modification shown in Fig. 12 the

100 driving member 25^b is triangular in form thus permitting the placing of the disk 3 in but one angular position relative to the driving member 25^b. In this modification the clamping member is provided with correspondingly formed projections 27^b for engaging the disk 3 within a circle through the outer portions of the driving member 25^b.

As shown most clearly perhaps in Fig. 13 but equally true also of the modified construction indicated in Figs. 11 and 12, the

110 ledges at the bottoms of the several notches 26 of the driving member constitute a card supporting platen or the exposed portions of a thin circular card supporting platen if one

115 so choose to regard it. Those portions of the driving member which extend above the level of the platen constitute a guard or guarding wall which protects the periphery or a part of the periphery of the platen, the

120 outer surfaces of this guarding wall being as far distant from the central axis as is the periphery of the platen as measured in the same axial plane. To put the matter in other words, the platen does not extend beyond the limits of the simple geometrical

125 figure, as for example a circle described through the outermost surfaces of the guard-

ing walls. In like manner the engaging surfaces of the clamping member 27, 28 are confined within the limits of this geometrical figure described through the outermost surfaces of the platen guards. While in the preferred constructions hereinbefore described and illustrated both the exposed upper surfaces of the platen and the engaging surfaces of the clamping member are confined within the limits of such a geometrical figure described through the outermost surfaces of the platen guard, the point of importance is that opposing engaging surfaces of platen and clamping member shall not extend beyond the limits defined by the contour of the outer surfaces of the guard or guards.

If the opposing engaging surfaces of platen and clamping member were to extend outside the limits defined by the outer surfaces of the guards it would be easy for the user of the watchman's clock to make his own cards by punching them with circular or other holes adapted to slip over the outer surfaces of the guards where they would be engaged by the opposing engaging surfaces of platen and clamping member wherever these opposing engaging surfaces extended outside the limits defined by the outermost surfaces of the guards. It would thus be an easy matter to use the clock with comparatively satisfactory results but without using the regular cards ordinarily furnished by the manufacturer of the clock at a profitable price. My invention, on the contrary, makes it almost incumbent upon the user of the clock to purchase the regular cards furnished by the clock manufacturer. This is so because the cards must have projections adapted to extend inwardly beyond the limits of the geometrical figure described through the outermost surfaces of the guards, these inwardly extending projections alone being in a position to be engaged by the opposing engaging surfaces of the platen and clamping member. The form which the inwardly extending projections of the cards must take in order that they may be clamped and driven by the clock may easily be made so complicated that the individual clock user will find it more expensive to make the cards with their necessarily irregular aperture than to purchase them from the manufacturer at a price which will insure a profit to the manufacturer on account of his ability to go to the expense of dies or other automatic machinery for cutting the irregular apertures in very large quantities.

While I have shown my invention in the particular embodiments herein described, it is to be understood, however, that many modifications may be made in the constructions indicated without departing from the spirit of my invention.

What I claim is:

1. In a watchman's clock, the combination of record receiving means, and a recording mechanism comprising a positively actuated member having a yielding pivotal support at one end.

2. In a watchman's clock, the combination of record receiving means, a recording mechanism comprising a member for receiving a printing or embossing device, an actuating device positively engaging one end of such member, and a spring support for the other end of such member.

3. In a watchman's clock, the combination of a record receiving dial, a key for printing or embossing a character upon such dial, a member adapted to receive and support the key normally out of contact with the dial, and a cam for positively engaging such member to force the key against the dial.

4. In a watchman's clock, the combination of a record receiving dial, a key for printing or embossing a character upon such dial, a member adapted to receive and support the key normally out of contact with the dial, a cam for positively engaging such member to force the key against the dial, and a spring support for such member adapted to permit yielding engagement between the key and the dial.

5. In a watchman's clock, the combination of a record receiving dial, a key for printing or embossing a character upon such dial, a member adapted to receive and support the key normally out of contact with the dial, a cam for positively engaging such member to force the key against the dial, and a spring support for such member adapted to permit yielding engagement between the key and the dial such spring support serving to return the member to its normal position when released from the cam.

6. In a watchman's clock, the combination of record receiving means, a recording device which is insertible and while inserted otherwise movable in the clock, a shutter normally between the record receiving means and such device, and means actuated by the initial insertion of the recording device into the clock for moving the shutter from the path of the recording device.

7. In a watchman's clock, the combination of a round disk, a key which is insertible and while inserted otherwise movable in the clock to print or emboss a character upon the disk, and a shutter disposed normally between the key-way and the disk, insertion of the key into the clock serving to move the shutter to an inoperative position.

8. In a watchman's clock, the combination of a record disk, a key adapted to print or emboss a character upon the disk,

a shutter disposed normally between the key way and the disk, and a lever normally projecting into the key way and actuated by insertion of the key into the clock to move the shutter to an inoperative position.

9. In a watchman's clock, the combination of a record disk, a key adapted to print or emboss a character upon the disk, a shutter disposed normally between the key way and the disk, a lever normally projecting into the key way, and a second lever pivoted to the shutter and engaged by the first lever to move the shutter to an inoperative position when the key is inserted into the clock.

10. In a watchman's clock, the combination of a cylindrical driving member having pockets in its cylindrical surface, a supporting platen at the bottom of the pockets and a member for clamping a card having engaging surfaces confined within said pockets.

11. In a device of the class described, the combination of a supporting platen, a clamping member having engaging surfaces adapted to coöperate with the surface of the platen in gripping a card resting upon said platen, and a guard wall protecting part of the periphery of said platen.

12. In a device of the class described, a supporting platen, a clamping member having engaging surfaces adapted to coöperate

with the surface of the platen in gripping a card resting upon the platen, and a guard extending upwardly from parts of the periphery of the platen, the shortest line through the outermost surfaces of the guard being outside the opposing engaging surfaces of the platen and clamping member.

13. In a device of the class described, the combination of a card-clamping device comprising two members having opposing engaging surfaces, and a guard attached to one of said clamping members, the said guard having its outer surfaces limited within a geometrical figure beyond which the opposing engaging surfaces of the clamping members do not extend.

14. In a device of the class described, the combination of a guard having breaks for the reception of inwardly extending projections of a card having an aperture for the reception of said guard, and a clamping device comprising two members having opposing engaging surfaces confined within the limits defined by the outermost surfaces of the guard.

In witness whereof, I hereunto subscribe my name this 18th day of May, A. D. 1910.

FRANKLIN HARDINGE.

Witnesses:

ALBERT C. BELL,
ROBERT F. BRACKE.