

Jan. 21, 1941.

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2,229,098

WATCHMAN'S CLOCK

Filed Jan. 18, 1940

Fig. 1

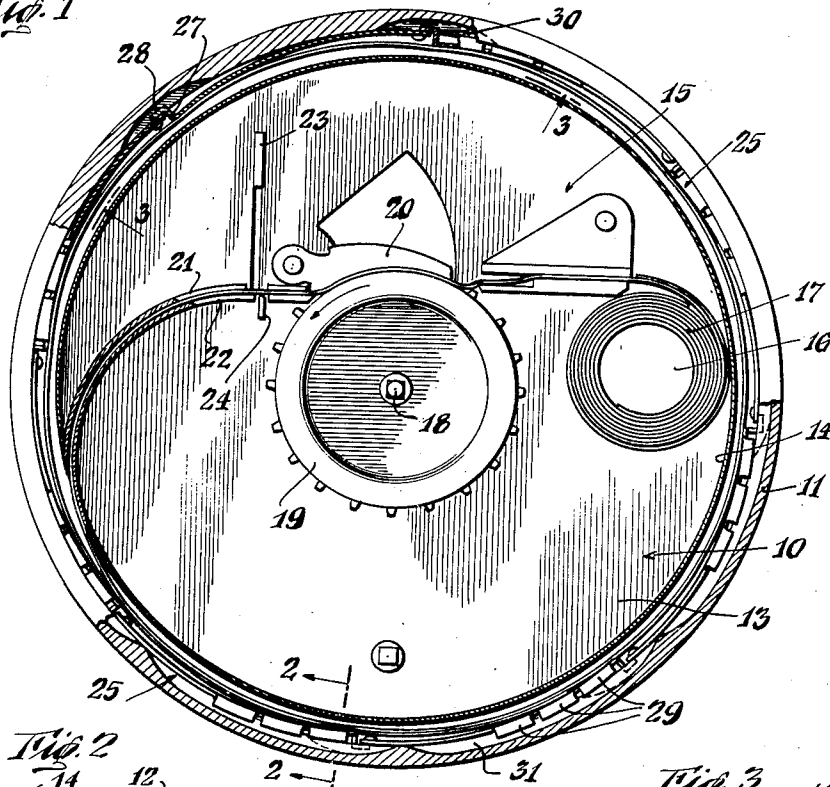


Fig. 2

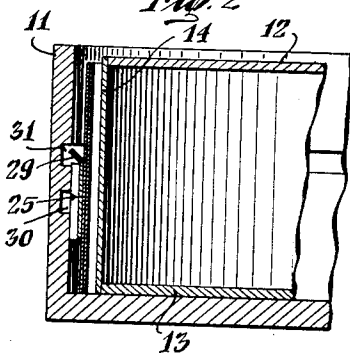


Fig. 3

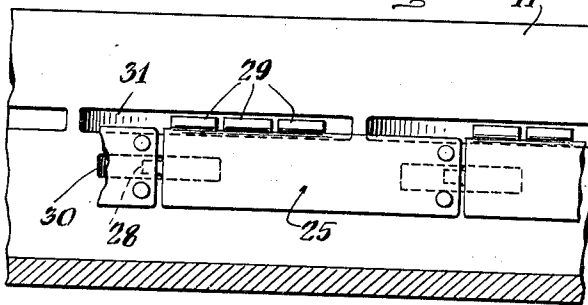


Fig. 5

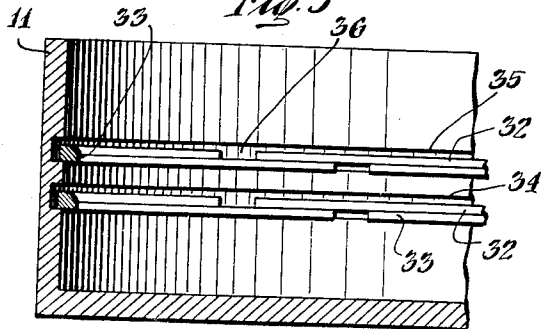
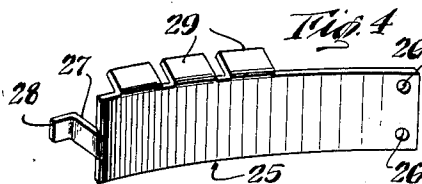


Fig. 4



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2,229,098

WATCHMAN'S CLOCK

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Application January 18, 1940, Serial No. 314,371

4 Claims. (Cl. 234—39)

This invention relates to improvements in watchman's clocks. It is among the objects of the invention to provide a watchman's clock with a compartment for storing the used portion of a recording tape between the operating mechanism and the clock casing. The accomplishment of this object is toward the end of providing a watchman's clock which is compact though having spacious accommodation for storing a long recording tape while it is being advanced for record purposes. Further and other objects of the invention will be hereinafter set forth in the accompanying specification and claims and demonstrated by the drawing which shows a preferred embodiment and the principle of my invention, and what I now consider to be the best mode of applying that principle.

Having reference to the drawing, Fig. 1 is a view of the back of a watchman's clock with the cover removed.

Fig. 2 is a section on line 2—2 of Fig. 1.

Fig. 3 is an inside elevational view on line 3—3 of Fig. 1.

Fig. 4 is a detail of a spring member.

Fig. 5 shows a detail of a modified form.

The watchman's clock of the present invention is of the type which is carried by a watchman in making a tour of inspection. The form of clock to which this invention relates consists of clockwork, a record sheet, means for coordinating the movement of the record sheet with the clockwork, and recording mechanism, either partially or wholly built in the clock. All of this is contained within a casing and the record sheet is available for examination and for replacement by a watch captain or other authorized person provided with keys to the casing. Some types of watchman's clocks are provided with recording mechanisms which are actuated by keys at different stations along a watchman's route of inspection, while for other types the recording mechanism is located at the various stations. In the latter type recording mechanism is introduced into the clock and is caused to make a record through coercion therewith.

A watchman's clock usually has an opening through which a dial and time indicating hands may be observed. This dial is at the front of the casing. The view of the casing illustrated in Fig. 1 is taken from the rear with the back removed. In the herein described clock the operating mechanism of the whole device is contained within a unit 10 which is removable from the enclosing casing. This casing has a circular wall 11.

Preferably, the clockwork and other elements which constitute the operating mechanism are confined between upper and lower walls 12 and 13 and a side wall 14 which keeps their contents dust-proof. It is not ordinarily necessary that walls enclosing the clockwork be so extensive as to enclose the other parts of the operating mechanism and occupy nearly all of the available space within the casing, as is done in the present embodiment of the invention. It is convenient, however, to mount all of the operating mechanism into a removable unit. As it clearly appears in Fig. 2 of the drawing, the outside edge extremity of the removable unit, which in the present instance is defined by the side wall 14, is spaced a short distance from wall 11 of the outside casing. The space thereby provided is sufficient for receiving the used record of many days of recording operation.

In the drawing the recording means is generally designated and located at 15. Recording is thereby accomplished upon the record strip in cooperation with a recording key which may either contain the recording type or cause actuation of recording type in the clock. Recording is accomplished by the coercion of the recording means 15 and the recording key.

The record strip is in the form of a strip wound into a roll. Suitable means such as a cylindrical well 16 is provided within the confines of the operating mechanism unit for receiving the supply roll 17. Means for advancing the record strip consists of a pinwheel 19 mounted upon an arbor 18 which is driven by the clockwork. Holes in the record strip are engaged by pins upon this pinwheel. A spring-pressed keeper 20 serves to retain the record strip in engagement with the pins. After the record strip leaves the pinwheel, it travels between guides 21, 22, which direct it to the periphery of the operating mechanism unit where it enters the annular space between the walls 11 and 14. This space serves as a storage compartment for receiving the record strip after it has advanced beyond the clock-operated advancing means. The guide means 21 and 22 are metallic strips preferably extending to the full depth of the operating mechanism unit. In the device shown they are interrupted for permitting the use of a pair of shear blades 23, 24, which may be used to cut the record strip.

The space adjacent wall 11 is open entirely around the casing so that ample space is provided for storing as long a record as might be desired. As the record strip is advanced by the

clockwork, its forward end can travel entirely around the operating mechanism before it starts to overlap itself within the storage compartment.

5 As there is a tendency for the record strip to slide along against the casing wall 11, it is desirable that any impediment to movement caused by possible friction between the tape and the wall be minimized. For accomplishing this, I
10 provide anti-friction means in the form of a series of light springs 25 which keep the record strip from rubbing against the outside wall. One of these springs is illustrated in Fig. 4. It consists of a light brass strip having holes 26 by
15 which it is attached to the outside wall and a bent surface 27 at its other end carrying a lip 28 which limits its movement away from the wall. Preferably, the springs are provided with sloping edges 29 at their upper surfaces so that
20 after handling the strip for inspection purposes it may not become engaged on the wrong side of a spring when being replaced.

There may be as many of these light springs as are desired, and I have shown eight in the
25 present embodiment of the invention mounted serially on the inner wall of the outside casing. As illustrated in Figs. 1 and 3, the lip of one spring engages beneath the rear end of an adjacent spring. The wall 11 of the casing is cut out with
30 grooves 30, 31 to accommodate the lips 28 and flanges 29 as the springs are deflected by the strip. It is to be observed that in addition to minimizing friction which would otherwise tend to act as a drag against the advance of the strip,
35 the springs, when deflected, provide greater storage capacity.

With the unit which contains the clock mechanism arranged otherwise than concentric to the wall of the casing, or so arranged as to allow
40 a greater spacing than that illustrated between the unit and casing wall, the storage chamber would consist of the area immediately adjacent the casing wall. Obviously an inner wall similar to the wall 14 is not indispensable to the provision of a storage chamber extending entirely
45 around the clock-operating unit. The forming of a storage chamber for the used tape in the manner which I have described and illustrated affords ample space for maintaining intact a long
50 series of record entries extending over considerable time. This is accomplished without loading the record strip to an appreciable degree and in an efficient manner as regards both operation and structural arrangement.

55 Fig. 5 illustrates another manner by which friction against the advancing strip may be minimized. In lieu of using springs, such, for example, like those previously described, one or more rings
32 are provided which present relatively narrow edges 33 for engagement with the record strip.
60 These rings may be formed as a part of the wall of the casing, but the arrangement shown in Fig. 5 is preferred, wherein two rings are mounted in

grooves 34, 35. Preferably the outside diameter of the rings is less than the diameter of the bottoms of the grooves so that the rings will be loosely engaged. The rings are constructed of spring material and are split as at 36 so that they
5 may be inserted in their respective grooves. These rings serve as runners which keep the advancing tape away from the interior of the casing. By having the rings loosely fit within their
10 grooves, sufficient play may be had for the rings to change position under pressure of the advancing paper.

What is claimed is:

1. In a watchman's clock, the combination comprising a casing having a cylindrical wall, 15 clock mechanism contained in said casing, means operated by said clock mechanism for advancing a record strip, means for guiding said record strip beyond said clock mechanism and toward said cylindrical wall, and an annular storage
20 compartment along said cylindrical wall and between said clock mechanism and the cylindrical wall for receiving the record strip.

2. In a watchman's clock, the combination comprising a casing having a cylindrical wall, 25 clock mechanism contained in said casing, means operated by said clock mechanism for advancing a record strip, means for guiding said record strip beyond said clock mechanism and toward said cylindrical wall, a storage compartment adjacent the cylindrical wall of said casing for receiving the record strip delivered by said guiding means, and means for relieving pressure between the record strip and casing wall.

3. In a watchman's clock, the combination 35 comprising a casing having a cylindrical wall, a unit within said casing and containing clockwork, recording means and means for storing a supply of record strip, means operated by said clockwork for advancing a record strip past the recording means, means for guiding such record
40 strip upon leaving said record strip advancing means, said guiding means being located for guiding the strip outward of said unit and toward the wall of said casing, and a compartment adjacent said wall for receiving and storing the strip without folding.

4. In a watchman's clock, the combination comprising a casing having a cylindrical wall, a unit within said casing and containing clock- 50 work, recording means and means for storing a supply of record strip, means operated by said clockwork for advancing a record strip past the recording means, means for guiding such record strip upon leaving said record strip advancing
55 means, said guiding means being located for guiding the strip outward of said unit and toward the wall of said casing, and anti-friction means disposed between the advancing strip and said wall for minimizing drag of said wall on the
60 advancing strip.

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