

T. HAHN.

Watchmans' Time-Checks.

No. 138,084.

Patented April 22, 1873.

Fig. 1.

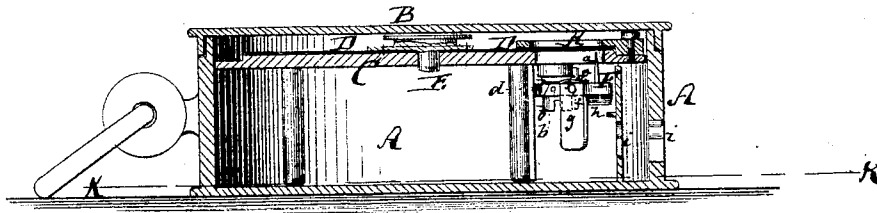


Fig. 2.

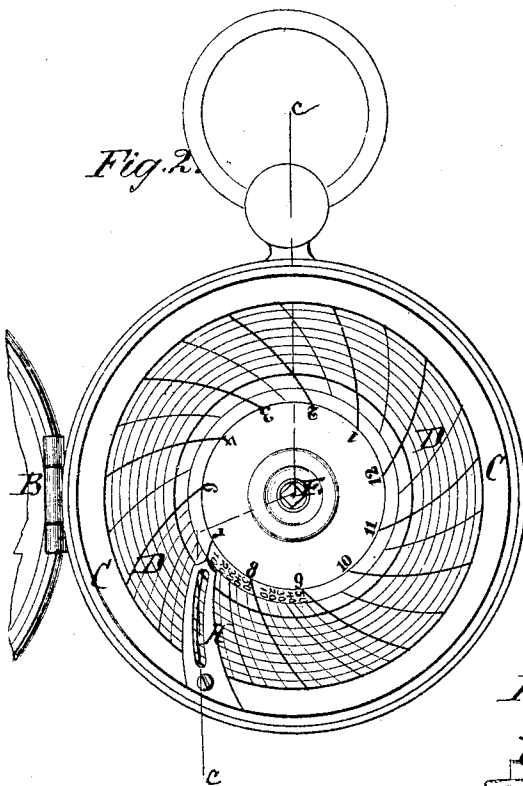


Fig. 3.

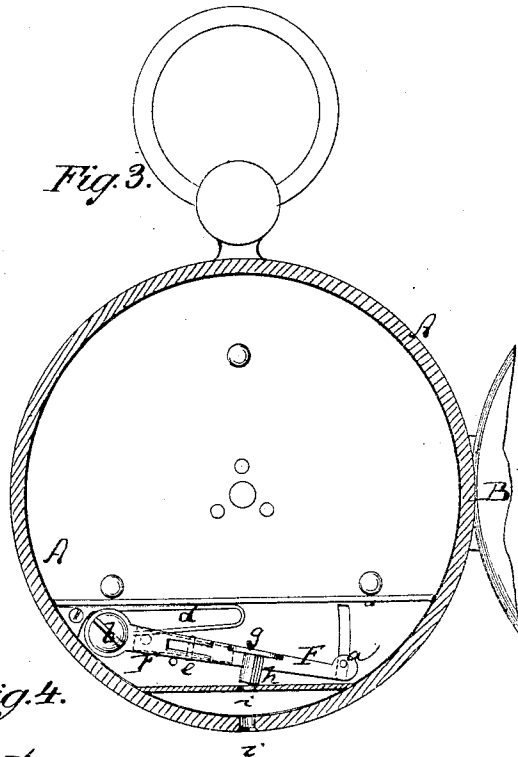
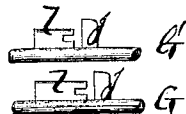


Fig. 4.



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IMPROVEMENT IN WATCHMAN'S TIME-CHECKS.

Specification forming part of Letters Patent No. **138,084**, dated April 22, 1873; application filed February 15, 1873.

To all whom it may concern:

Be it known that I, THEODORE HAHN, of Stuttgardt, in the Kingdom of Würtemberg, Germany, have invented a new and Improved Watchman's Time-Detector, of which the following is a specification:

Figure 1 is a sectional view of my improved time-detector taken on the line C C, Fig. 2. Fig. 2 is a face view of the same. Fig. 3 is a section on the line K K, Fig. 1. Fig. 4 is a side view of two different-sized keys and an end view of one of the same.

Similar letters of reference indicate corresponding parts.

The object of this invention is to simplify the construction of watchman's time-detectors and to lessen the expense of the same so that they may come within reach of all who heretofore avoided the use of time-detectors on account of their great expense and complexity. My invention consists in using in connection with a rotary paper dial a piercing-tool, which is acted upon by several different-sized keys, and which is pivoted below the dial-support, so that it can be swung nearer to or further away from the center of the dial, and which is jointed so that it may be swung up by the keys to pierce the dial. This tool or piercer is provided or connected with two springs, one of which serves to keep it down and to hold the piercing-points away from the paper, while the other swings it outward to its greatest distance from the center of the dial. The pivoted jointed piercer will, therefore, answer all the purposes of the complex devices heretofore employed in watchman's time-detectors, and it is a far less expensive and at the same time much more reliable instrument for this purpose than all the devices formerly employed. Above the dial-support is, furthermore, employed a stationary pointer or hand to show the time on the movable dial, said pointer being, by preference, slotted to admit the piercing-pins through it from below.

In the accompanying drawing, the letter A represents the case or housing of my improved watchman's time-detector, made of cylindrical or other suitable shape. B is its lid, which may be hinged or otherwise attached to the case A. C is a circular plate, placed within the case A over the clock-work therein con-

tained, which clock-work, however, is not shown in the drawing. This plate C is held immovable in the case and serves as a support for the rotating dial D, that is made of paper or equivalent material and placed upon C. The dial D is connected, in customary or suitable manner, with a spindle, E, of the clock-work, which spindle passes downward through the center of the plate C, and is properly connected with the clock-work to be rotated by the same, and thereby to impart rotary motion to the dial-plate D with the requisite speed. The face of the dial is by series of concentric circles subdivided into annular spaces, as shown in Fig. 2, each such annular space being intended to receive the action of a different key. The dial is also provided with cross-lines extending from the figures 1 to 12, that are written or printed on its inner part toward the periphery of the dial, each of the said cross-lines being made in a curve, whose radius is equal in length with that of the piercing-tool, hereinafter described. This piercing-tool F is pivoted to the under side of, or at least below, the plate C, and carries at its further end one or more upwardly-projecting pins, *a*. On its pivot-pin *b* the tool F can swing horizontally, and by a spring, *d*, it is swung out to its greatest extent, in manner indicated in Fig. 3. At *e* the tool F is jointed so that its free end can be swung up or down, the most downward position being that of a straight line with its shank that is pivoted by the pin *b*. A spring, *f*, shown in Fig. 1, bears upon such outer jointed part of the tool F and holds it down in a horizontal position. From the under side of the tool F projects downward a plate, *g*, and forward of the same is a prismatic or other shaped rod or lug, *h*. When the key G is introduced through the key-hole *i* of the case A its end will bear against the plate *g* and will crowd the tool F inward as far as the end of the key will be able to so move the tool. Each key G is provided with a projecting lug, *j*, back of its ward *l*, as shown in Fig. 4, the lug *j* serving to arrest it against the key-hole plate, and to regulate its depth of entry into the lock, so that if keys having wards *l* of various lengths are employed on the same instrument successively, each key will crowd the tool F inward a certain specific

distance, differing from that to which any of the other keys moves the same, so as to bring its projecting piercing point or points *a* under one particular one of the annular rings formed on the surface of the dial. Upon turning each key in the lock its ward will bear against the lug *h* of the tool *F* and will swing the jointed part of such tool up and cause the pin *a* to pass upward through a slot in the plate *C* and through the paper *D* that rests thereon, and to pierce such paper in that one of the annular subdivisions which it is intended for such key to control.

In Fig. 3 the slot in the plate *C* is clearly shown. Directly above this slot, but above the paper dial, is a similar slot in the pointer *H*, which pointer is stationarily affixed to the case *A* or plate *C*. The curve of the pointer, or at least that of its slot and that of the slot in *C*, is taken on a radius equal to the length of the tool *F*, and on the same radius also as the cross-lines on the dial, to permit the piercing-pins *a* to be brought under any one of the annular subdivisions of the dial, and to indicate, when raised through the paper, the correct time in either one of said subdivisions at which it was caused to pierce the same. The dial made with the curved cross-lines is, therefore, an important feature of my invention.

The manner of using this instrument is substantially the same as that of similar instruments already in use—that is to say, the sev-

eral keys are secured in the places to be visited by the watchman who carries the clock with him, and who, upon reaching a key, introduces the same through the key-hole *i* and turns it once around so that the paper dial will be pierced in position to indicate by which key it has been pierced and at what time. The watchman can thus, by this means, be fully controlled.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The rotary dial *D*, made with the concentric annular subdivisions and with cross-lines curved on a radius equal in length to the pivoted carrying-arm of the piercing-tool, substantially as described.

2. The pivoted arm *F* of the piercing-point *a*, arranged below the plate *C* and jointed to be horizontally as well as vertically flexible or movable, as described.

3. The curved slotted supporter *H* applied above the rotary dial *D* and above the piercer of the jointed pivoted arm *F*, substantially as described.

4. The tool-arm *F*, provided with the pendent plate *g* and lug *h*, as specified.

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Witnesses:

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