C. H. JENKINS.

PEDOMETER ATTACHMENT FOR WATCHMEN'S PORTABLE TIME REGISTERS.

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1,131,062. Patented Mar. 9, 1915.

Fig. 1,

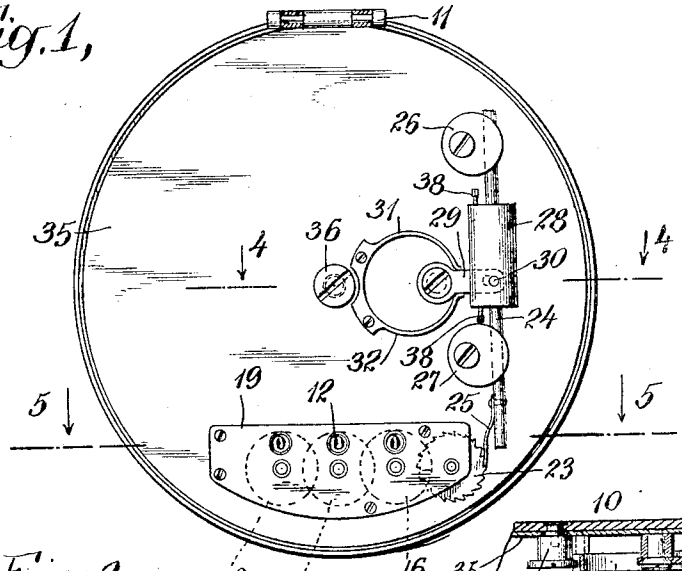


Fig. 4

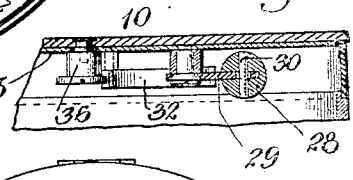


Fig. 2,

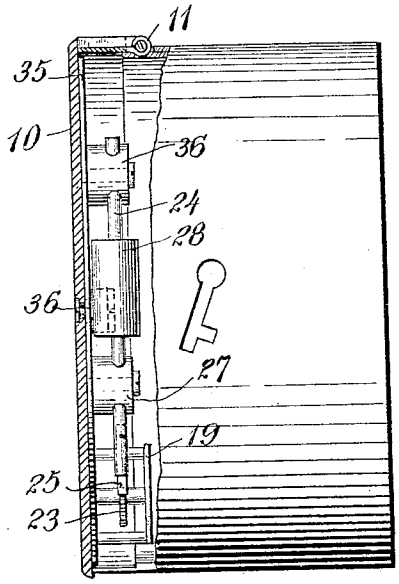


Fig. 3,

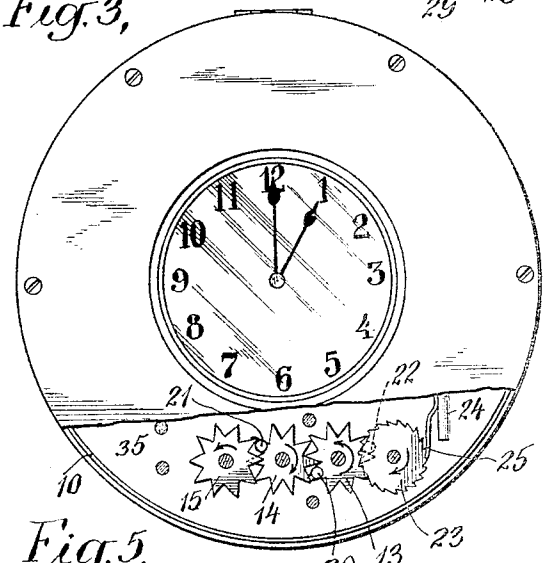
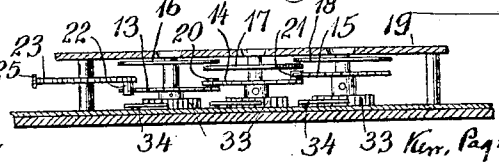


Fig. 5.



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UNITED STATES PATENT OFFICE.

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PEDOMETER ATTACHMENT FOR WATCHMEN'S PORTABLE TIME-REGISTERS.

1,131,062. Specification of Letters Patent. Patented Mar. 9, 1915.

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To all whom it may concern:

Be it known that I, CHARLES H. JENKINS, a citizen of the United States, residing at Belleville, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Pedometer Attachments for Watchmen's Portable Time-Registers, of which the following is a full, clear, and exact description.

In a certain time-registering system for watchmen the various stations which the watchman visits are not equipped with time-registering clocks, but instead are provided with recording keys, while the clock itself is carried by the watchman. At each station the key belonging thereto is inserted in the clock, thereby producing a time-imprint on the record dial which indicates the time at which the station was visited. Examination of the record dial at the completion of his tour of duty will then show whether the stations were all visited and the times at which they were reached.

For certain reasons it is desirable to have independent means for checking the watchman's performance of his duty, for example, to show whether he has actually traversed the distance comprised in the rounds he is supposed to make. Hence if he should procure duplicate keys and make up his time record without actually going the round the fact would be at once evidenced by the independent checking means referred to. For this purpose I propose to combine with the time-register a pedometer, by which the distance traveled by the watchman will be registered. Knowing then the distance ordinarily required to complete the rounds the required number of times during his tour of duty, examination of the pedometer will show whether or not the watchman has been derelict.

To this and other ends the invention consists in the novel features and combinations of elements hereinafter described, and more particularly set forth in the appended claims.

The preferred embodiment of the invention is illustrated in the accompanying drawing, and referring now thereto, Figure 1 is an elevational view, showing the pedometer mounted in the lid of the clock case, with the lid in section. Fig. 2 is a side view of the clock with the lid in section to show the pedometer. Fig. 3 is a front view of the clock with the case partly broken away to show the pedometer in rear elevation. Fig. 4 is a section on line 4—4 of Fig. 1. Fig. 5 is a sectional view of the step-counting mechanism on the line 5—5 of Fig. 1.

The clock casing, 10, has a hinged lid 11, in which, by preference, the pedometer mechanism is mounted. The latter includes a register 12 of any suitable type, as for example a series of star wheels, 13, 14, 15, each associated with a number dial 16, 17, 18, respectively, the several number dials being arranged behind a supporting plate 19 in which the arbors of the counter are journaled. The star wheel 13 carries a stud 20 adapted to engage the star wheel 14 and so actuate the same, and the last-named wheel has a similar stud 21 to actuate the wheel 15. The number of teeth on each wheel being ten, it will be seen that ten steps in the step-by-step movement of wheel 13 will move wheel 14 one step, and that ten steps, or a complete revolution, of wheel 14 will turn wheel 15 one step, so that the number dial 18 will indicate hundreds, dial 17 will indicate tens, and dial 16 will indicate units. The latter wheel is actuated by a stud 22 on a ratchet wheel 23 having, say, twenty teeth.

For the purpose of rotating the ratchet wheel step-by-step an oscillating pawl 24 is provided, having a spring finger 25 engaging the ratchet. This pawl is mounted to slide longitudinally in guides 26, 27, and its center is weighted, as at 28, so as to give the pawl sufficient momentum to actuate the ratchet. Extending into a slot in the side of the weight 28 is a pivoted arm 29, connected to the weight by a pin 30 passing through a slot in the arm. This arm is engaged on opposite sides by light blade springs 31, 32, preferably integral with each other and curved as shown.

From the foregoing it will be evident that when the clock is carried with the pawl horizontal the motion of the body in walking will impart a movement of oscillation to the pawl, thereby rotating the ratchet and actuating the counting wheels as previously described, the movement of the pawl being damped, so to speak, by the yielding resistance of the opposing springs 31, 32, which, when the clock is not being carried, also serve to hold the pawl in a central or neutral position. Of course the number appear-

ing on the register is, in accordance with the well-known principle of the "pedometer", to be read in linear units, as for example, yards, or miles and fractions of a mile. Thus, for example, if it takes twenty steps of thirty inches each to effect a complete revolution of the ratchet wheel, thereby advancing the star wheel 13 one tooth, one unit on said wheel is to be read as fifty feet, or, roughly, .01 of a mile. The second star wheel will then register tenths of a mile, and the third will register miles. In general, the rate at which the ratchet wheel 23 rotates depends upon the amplitude of the pawl's oscillations, which in turn depends upon the length of the step taken in walking by the person carrying the device.

For the purpose of preventing backward rotation of the star wheels, a series of ratchets 33 is provided, with pawls 34, associated with the respective wheels. If desired, a similar ratchet and pawl may be provided for the ratchet wheel 23, but the spring 25 may be made to engage the same so lightly that the retraction of the spring will not have any effect on the wheel.

In order to have the actuating pawl 24 substantially horizontal at all times, in whatever position the clock is carried, the pawl and the other instrumentalities of the pedometer are mounted, preferably detachably, on a disk 35, which is in turn mounted centrally on a pivot 36 carried by the clock-case lid. Now, unless the clock is carried with the pedometer-supporting disk perfectly horizontal (which is practically impossible for any length of time) the greater weight on one side of the disk will cause such heavier portion to swing to the lowest point, thus making the pawl, which is the heaviest part of the mechanism, approximately horizontal. The disk should not, however, be so delicately poised as to cause it to oscillate instead of the pawl. It is obvious, however, that the registering mechanism operated by the weighted pawl may be made heavier than the latter, in which case the pawl would assume a vertical position.

If it is desired simply to register the number of steps taken by the watchman, irrespective of their length means should be provided for limiting the travel of the pawl so that it can in no case turn the ratchet more than one tooth in each oscillation. For this purpose the weighted portion 28 may be provided with adjustable screw-stops 38 in its ends, in position to engage the guides 26, 27 as the pawl vibrates. By properly adjusting these stops the movement of the pawl can be made uniform in extent no matter how long or how short the steps taken by the person carrying the clock may be. Or they may be adjusted to correspond with a particular length of step, for example the steps habitually taken by the watchman, so that the mechanism will not only count the steps but also register the distance walked.

It is clear that when the clock is thus equipped the distance which the watchman must walk, or the number of steps he must take, or both, to perform his duty properly, will be registered by the pedometer with approximate accuracy, thus affording additional evidence as to such performance. Any unreasonable descrepancy between the registration the pedometer ought to show and the registration it actually does show will therefore call for an explanation on the part of the watchman.

It is to be understood that the instrumentalities herein specifically described constitute merely the preferred embodiment of the invention, which can be embodied in other effective forms without departure from its proper spirit and scope as defined by the appended claims.

I claim:

1. A watchman's portable time-register, including a clock-case having a lid, a pivoted support carried by the lid, and means mounted on the support for registering the distance traversed by the watchman carrying the time-register, said means including an oscillatory device arranged at one side of the pivoted support.

2. A pedometer, comprising, in combination, an elongated pawl, a support at each end thereof in which the pawl is adapted to reciprocate, a pivoted arm having its free end connected to said pawl between the ends thereof, and mechanism actuated by the motion of the pawl for counting and registering units of distance.

3. A pedometer, comprising, in combination, an elongated pawl, a support at each end thereof in which the pawl is adapted to reciprocate, a pivoted arm having its free end connected to said pawl between the ends thereof by means of a lost motion connection, and means actuated by the motion of the pawl for counting and registering units of distance.

4. A pedometer, comprising, in combination, an elongated pawl and weight, a support at each end thereof in which the pawl is adapted to reciprocate the weight on said pawl located between the supports, a pivoted arm having its free end connected to said pawl, opposing springs contacting with said arm and adapted to damp the movement of said pawl, and means actuated by the motion of the pawl for counting and registering units of distance.

5. A pedometer, comprising, in combination, an elongated pawl, a support at each end thereof in which the pawl is adapted to reciprocate, means on said pawl to regulate

the amplitude thereof, registering means, and means also on said pawl for converting the reciprocity motion thereof into rotary motion of the registering means.

6. A pedometer, comprising, in combination, an elongated pawl, a support at each end thereof in which the pawl is adapted to reciprocate, and adjustable means between the support for regulating the amplitude of the reciprocation of the pawl.

7. A pedometer, comprising, in combination, an elongated pawl, a support at each end thereof in which the pawl is adapted to reciprocate, a weight on said pawl located between the supports, and adjustable means on said weight for contacting with said supports to regulate the movement of said pawl.

8. A pedometer, comprising, in combination, an elongated pawl, a support at each end thereof, adjustable means on said pawl located between said supports for regulating the movement of said pawl, and means actuated by the motion of said pawl for counting and registering units of distance.

9. A pedometer, comprising, in combination, an elongated pawl, a support at each end for the pawl in which the latter is adapted to reciprocate, a weight upon said pawl, a pivoted arm having its free end connected to said weight, opposing springs contacting said arm to damp the movement of said pawl, and mechanism actuated by the motion of said pawl for counting and registering units of distance.

10. In a pedometer, an oscillating pawl, mechanism operated by the motion of said pawl for counting and registering units of distance, and movable means on which the said pawl and mechanism is supported to cause the said pawl to assume a horizontal position.

11. In a pedometer, a disk centrally pivoted to the pedometer casing, a weighted reciprocating pawl, mechanism actuated by the motion of said pawl for counting and registering units of distance, said pawl and said mechanism mounted on one side of the pivot of said disk whereby the pawl swings by gravity to its lowest point.

In testimony whereof I affix my signature in the presence of two subscribing witnesses.

CHARLES H. JENKINS.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents Washington, D. C."