N. P. LEWCHUK.

ALARM DEVICE.

APPLICATION FILED OCT. 9, 1917.

1,261,411.

Patented Apr. 2, 1918.

3 SHEETS—SHEET 1.

Fig. 1.

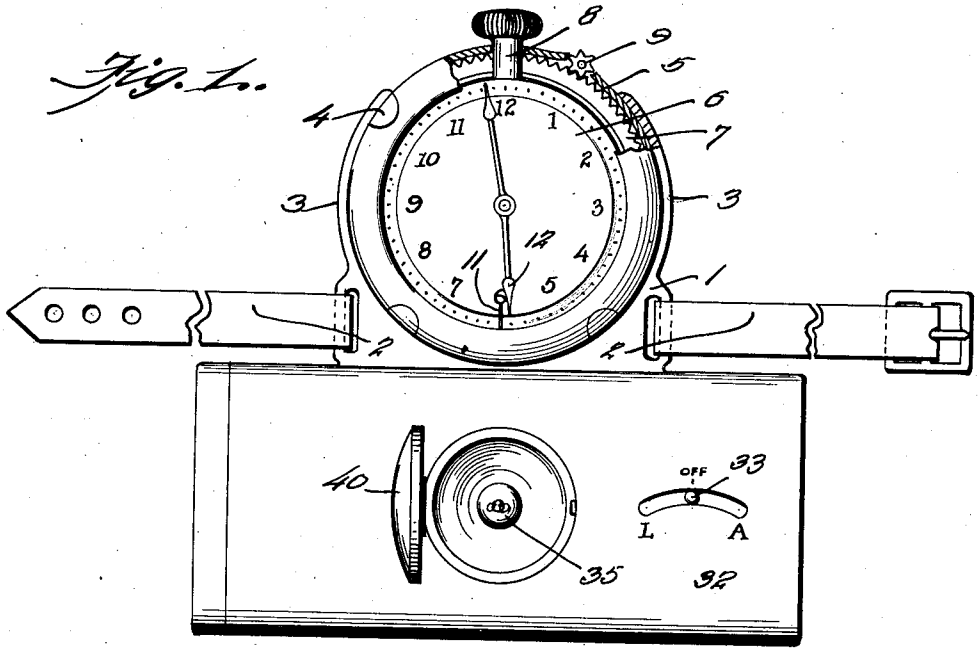
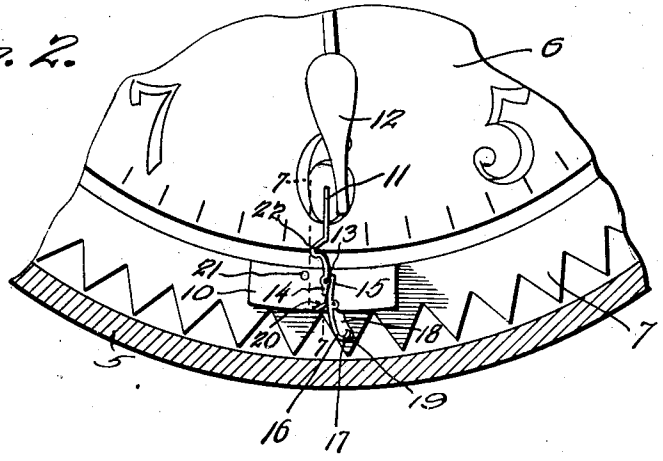


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

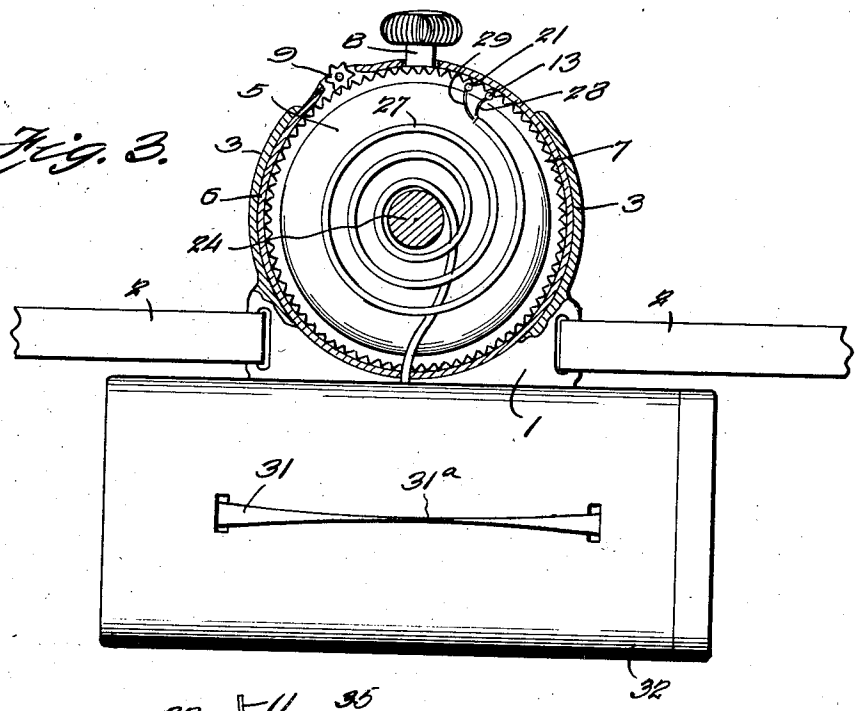
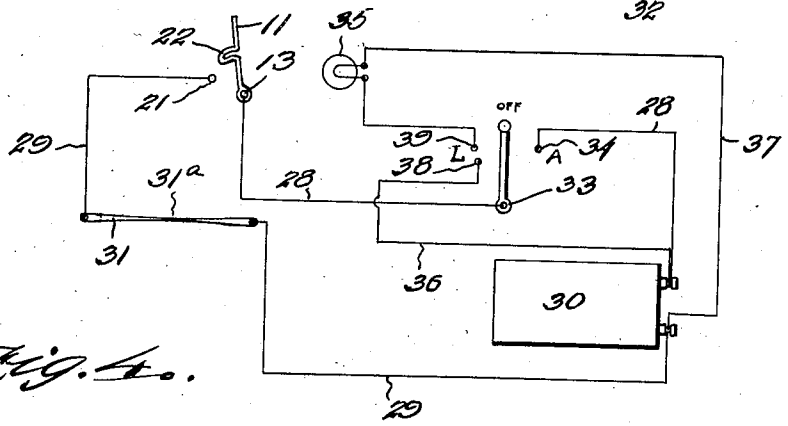


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

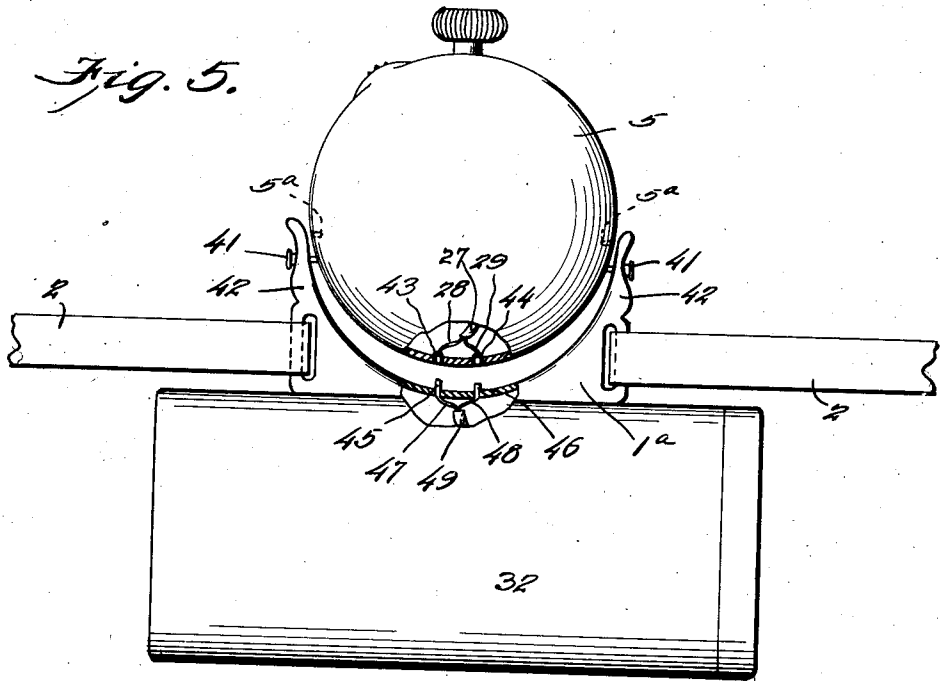
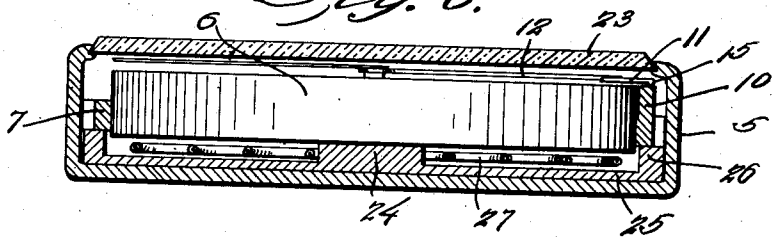


Fig. 6.



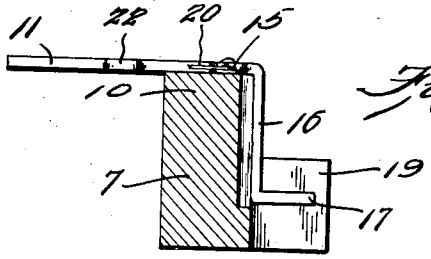


Fig. 7.

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UNITED STATES PATENT OFFICE.

NICHOLAS P. LEWCHUK, OF CANORA, SASKATCHEWAN, CANADA.

ALARM DEVICE.

1,261,411. Specification of Letters Patent. Patented Apr. 2, 1918.

Application filed October 9, 1917. Serial No. 195,641.

To all whom it may concern:

Be it known that I, NICHOLAS P. LEWCHUK, a subject of the King of Great Britain, residing at Canora, in the Province of Saskatchewan and Dominion of Canada, have invented certain new and useful Improvements in Alarm Devices, of which the following is a specification.

This invention relates to signaling means, and more particularly to an alarm for awakening a person at a pre-determined time.

One of the main objects of the invention is to provide a device whereby the sleeper may be awakened without the necessity of disturbing other persons in the same or adjoining rooms. A still further object is to provide a device of simple construction whereby the signaling or alarm means may be quickly and easily set for operation at any time desired. Another object is to provide a watch in combination with a ring mounted for rotation about the same, this ring carrying circuit closing means operable by the hour hand of the watch for operating the signaling element, means being provided for adjusting the ring about the watch for the purpose of setting the signal. Further objects will appear from the detailed description.

In the drawings:—

Figure 1 is a front view of a signaling device constructed in accordance with my invention,

Fig. 2 is a fragmentary detail view of the circuit closing means,

Fig. 3 is a back view with the casing for the watch and the holding frame broken away,

Fig. 4 is a diagrammatic view of the circuits employed,

Fig. 5 is a back view of a modified form of the device partly in section,

Fig. 6 is a central sectional view through the watch casing, and

Fig. 7 is a section taken substantially on the line 7—7 of Fig. 2.

The securing or holding frame 1 is provided at each end with a slot which receives the end portion of a securing strap 2, these straps coöperating to secure frame 1 on a person's wrist in the well known manner. This frame is provided, at each side, with the arcuate resilient arms 3, these arms having the suitably spaced arcuate clips 4 which are adapted to fit about the edge portion of a casing 5 which contains the watch 6. This casing, as well as frame 1 is made of electrical insulating material. The watch casing proper, *i. e.*, the casing that actually contains the works may also be made of electrical insulating material, though this is not essential under ordinary conditions.

A gear ring 7 of electrical insulating material is mounted about the watch 6 so as to be rotatable thereon, this gear ring being positioned in back of the stem 8. A small pinion 9 is rotatably mounted in casing 5 and meshes with the gear ring. This pinion serves to move the ring in either direction about the watch, this ring fitting snugly on the outer peripheral portion of the watch so as to be frictionally secured in adjustment. By this means, ring 7 may be easily adjusted in either direction about the watch so as to set the circuit closing means carried thereby in any desired position relative to the hour hand of the watch so as to cause operation of the alarm device at any desired pre-determined time.

The ring 7 is provided with an integral upwardly extending lug or boss 10, the upper face of this boss being flush with the upper face of the dial of the watch. A movable contact arm 11 is mounted on this boss and extends inwardly across the dial of the watch so as to be engaged by the hour hand 12 this arm being positioned in the plane of the hand. Arm 11 is rockably mounted on a pin 13 secured in the boss 10 and is provided with an outwardly extending end portion or finger 14. A setting lever 15 is pivotally secured intermediate its ends on the boss 10, this lever being bent downward at a right angle and then outward to provide a rectangular or L-shaped portion 16. The outer end of this lever is curved to provide a resilient locking head 17, this head being adapted to fit snugly into a cutout or recess 18 formed in the tooth 19 of gear ring 7 so as to be frictionally gripped thereby thus releasably securing the lever in operative position. As will be noted more clearly from Fig. 2 of the drawings, the inner arm of lever 15 extends beyond the pin 13 of contact arm 11 thus acting to hold this member in set position extending inwardly above the dial of the watch. A small wire spring 20 is secured on the boss 10 and presses against the inner arm of setting lever 15 inside of the pivotal axis thereof. This spring serves to counteract to a great extent the frictional binding of head 17 in the recess 18, thus giv-

ing a very delicate set so that the hour hand 12 can easily move the contact arm 11 when it engages the same. When the hour hand engages the member 11, it swings it outward so as to bring it into engagement with a contact pin 21 secured in boss 10, the arm being provided with a bent portion 22 which serves as a spring catch for releasably securing the arm in engagement with the post or pin 21, when moved into engagement therewith by hand 12. By this means, the pins 13 and 21 are electrically connected so as to complete the circuit of the signaling or alarm element. As the ring 7 can be quickly and easily adjusted about the watch, it will be evident that the device can be readily set to operate at any pre-determined time. Also, the teeth of the pinion 9 for operating ring 7 serve to engage the rounded head 17 of setting lever 15 so as to move the same into recess 18, thus moving the contact arm 11 into operative position in the manner previously described. It will be understood, of course, that the contact arm 11 projects inwardly above the dial of the watch beneath the crystal 23 which is carried by the casing 5.

The watch 6 is supported by a boss 24 formed integral with, and at the center of a disk-like supporting member 25 mounted in casing 5 and provided with an upwardly directed peripheral flange 26 which is of somewhat greater height than boss 24 and acts to support the gear ring 7. By this construction, an annular space is formed beneath the watch, this space providing a compartment which receives a cable 27 which is spirally coiled about the boss 24. This cable contains the wires 28 and 29 which are connected to the pins 13 and 21, respectively, at one end. The other ends of these wires are connected to the opposite poles of an electric cell or battery 30 which is secured to the casing 1. An alarm element 31 is mounted on the back of the casing 32 containing the cell and is interposed in the wire 29. This element may be made of any suitable material which will present a relatively high resistance to the passage of the current and will be easily raised to a comparatively high temperature by this current. The central portion of this element is restricted, as at 31ª thus producing a portion which will readily become sufficiently hot to awaken a person wearing this device, the element 31 being normally in contact with the back of the wearer's hand. A control switch 33 is interposed in the wire 28. This switch may be moved into engagement with the contact 34 so as to permit the circuit of the alarm device or element 31 to be completed when the arm 11 is moved into engagement with pin 21. This control switch may be mounted on the battery 30 and may be of usual construction, serving also to close the circuit for operating the light 35 which is connected to the poles of the battery by the wires 36 and 37, these wires being connected to the contacts 38 and 39, respectively. When the switch 33 is in "off" or neutral position, both the light circuit and the circuit of the alarm element 31 will be broken as will be evident from Fig. 4 of the drawings. From this it will be evident that by rotating the gear ring 7 so as to bring contact arm 11 into position above the time on the dial of the watch to which it is desired to operate the alarm, and then moving the switch 33 into position to close the alarm circuit (indicated by A), the alarm will be operated at the desired time so as to heat the member 31 and thus awaken the wearer. In addition, the light 35 may be utilized by moving the switch 33 into the position indicated by L so as to complete the light circuit. This light is of usual construction, and is protected by a hinged cover 40 when not being used.

In the form shown in Fig. 5, the casing 5 is provided, at opposite sides thereof, with recesses 5ª which are adapted to receive spring-pressed securing pins 41 which are carried by the arms 42 of the holding frame 1ª. In this case, the wires 28 and 29 are connected to sockets 43 and 44, respectively, secured in the casing 5. These sockets are adapted to receive the studs 45 and 46, respectively, to which are connected the wires 47 and 48 of the cable 49, the other ends of these wires being connected to the poles of the battery or cell carried by casing 32. This construction permits the watch to be readily removed from the holding frame so as to be carried in a pocket in the usual manner, the cell 32 and holding frame, being also carried in the pocket if desired. When the watch is inserted into the holding frame so as to bring the pins 41 into engagement with the recesses 5ª, the studs 45 and 46 will engage into the sockets 43 and 44, respectively, so as to electrically connect the pins 13 and 21 to the poles of the battery 30 after which the device will operate in the manner above outlined.

It will be evident that there may be slight changes made in the construction and arrangement of the different parts of my invention without departing from the field and scope of the same, and I intend to include all such variations, as fall within the appended claims, in this application in which a preferred form only of my invention is disclosed.

What I claim is:

1. In signaling means, a watch, a source of supply of electrical energy, an alarm device connected to said source of supply, a gear ring of electrical insulating material mounted on the watch for movement about the same, circuit closing means carried by

the ring and interposed in the circuit of the alarm adapted to be operated by the hour hand of the watch, and means for adjusting the ring in either direction about the watch, said circuit closing means being engageable by the adjusting means so as to be moved into set position thereby.

2. In signaling means, a casing, a watch mounted therein, a source of supply of electrical energy, an alarm device connected to said source of supply, a ring mounted on the watch for movement about the same in either direction, circuit closing means carried by the ring and interposed in the circuit of the alarm adapted to be operated by the hour hand of the watch, and means for adjusting the ring about the watch exteriorly of the casing and for moving said circuit closing means into set position.

3. In signaling means, a casing, a watch mounted therein, a source of supply of electrical energy, an alarm device connected to said source of supply, a ring of electrical insulating material mounted on the watch for movement about the same, a fixed contact carried by the ring, a movable contact carried by the ring and movable into engagement with the fixed contact, the movable contact being extended so as to be engaged by the hour hand of the watch, and both of said contacts being interposed in the circuit of the alarm, a setting lever mounted on the ring and adapted to engage the movable contact so as to normally hold it in position to extend inwardly over the face of the watch, means for releasably securing the setting lever in operative position, and means carried by the casing for adjusting the ring and for moving the setting lever into operative position.

4. In signaling means, a holding frame, a case releasably secured in said frame, a watch contained thereby, a gear ring mounted on the watch for movement about the same in either direction and electrically insulated from the watch, a contact pin carried by said ring, a movable contact arm carried by the ring and movable into engagement with said pin, means for releasably securing said arm in position extending above the face of the watch for engagement by the hour hand of the watch, an electric battery carried by said holding frame, an alarm device connected to the poles of said battery, means for connecting said pin and arm into the circuit of the alarm when the watch is mounted in the holding frame, and means for moving said ring in either direction about the watch and for operating the means for securing the contact arm in position to be engaged by the hour hand of the watch.

5. In signaling means, a casing, a watch mounted therein, a ring of electrical insulating material mounted on the watch for movement about the same, said ring being provided with gear teeth, a fixed contact carried by the ring, a movable contact carried by the ring movable into engagement with the fixed contact, said movable contact being extended so as to be engaged by the hour hand of the watch when in said position, a setting lever mounted on the ring and adapted to engage the movable contact so as to hold it in position to extend inwardly over the face of the watch, said setting lever projecting beyond the periphery of the body of the ring and being provided at its outer end with a curved setting head adapted to fit into a recess formed in one of the teeth of the ring so as to bind frictionally therein for the purpose of releasably securing the movable contact in set position, the outer end portion of said lever projecting when in unset position between two of the teeth of said ring, and a setting pinion carried by said casing and in engagement with the teeth of said ring for adjusting the same about the watch, said pinion also serving to engage the outer end portion of the setting lever so as to force the same into the recess formed in one of the teeth thus releasably securing the movable contact in set position coincident with the setting of the alarm.

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

NICHOLAS P. LEWCHUK.

Witnesses:
E. R. PRINCE,
W. WRIGHTSON.