

W. A. ARMOUR.
ALARM RESETTING MEANS FOR CLOCKS.
APPLICATION FILED APR. 13, 1909.

1,040,111.

Patented Oct. 1, 1912.

2 SHEETS—SHEET 1.

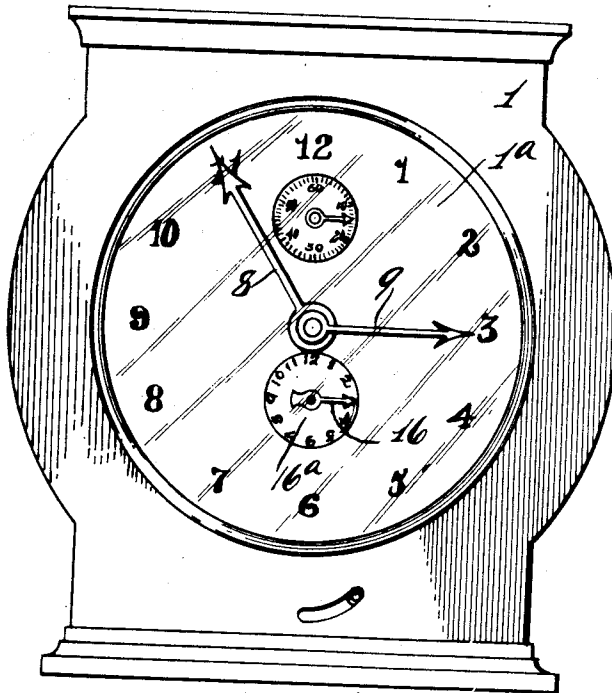


Fig. 1.

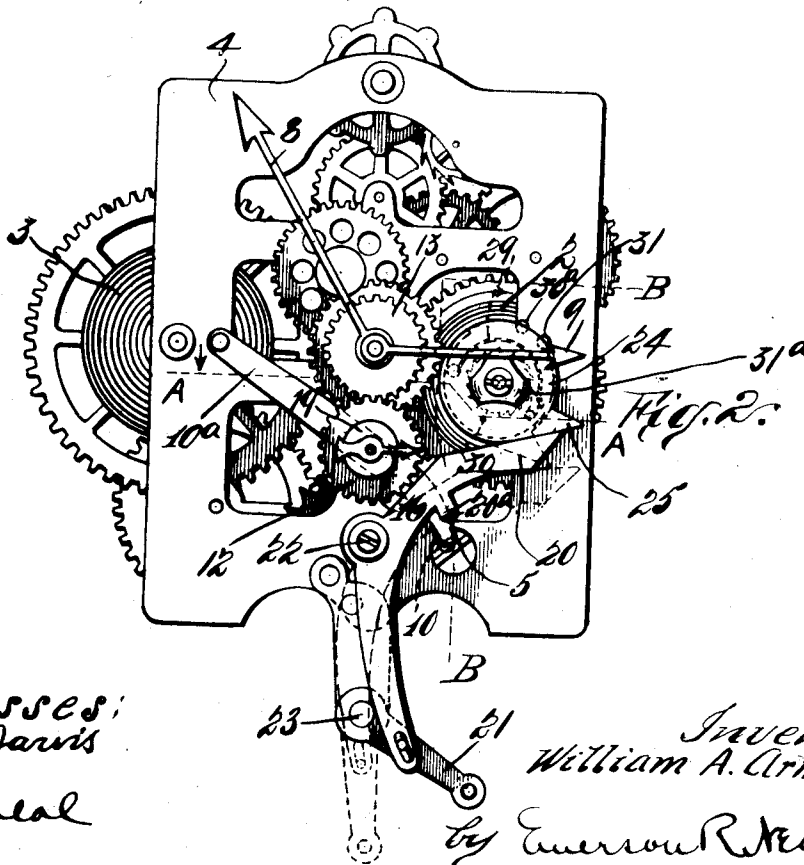


Fig. 2.

Witnesses:
C. A. Jarvis
C. T. Neal

Inventor
William A. Armour
by Emerson R. Newell
Attorney.

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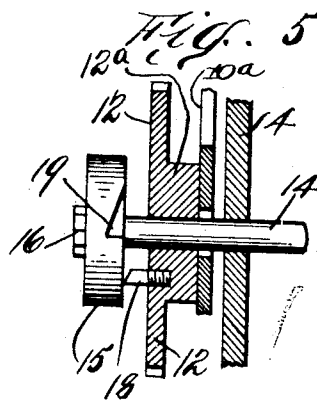
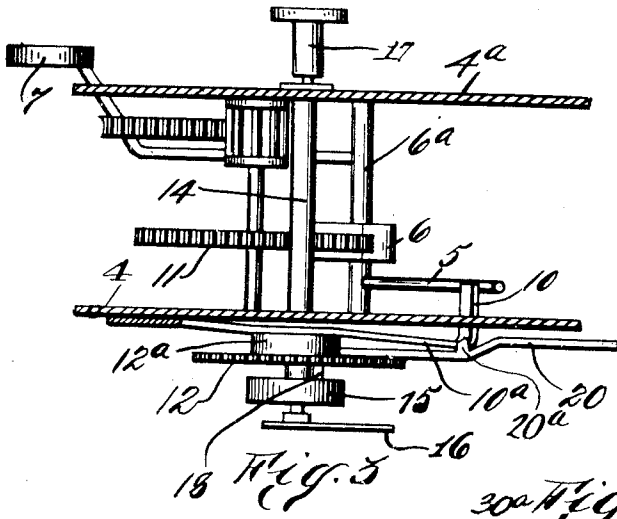


Fig. 6

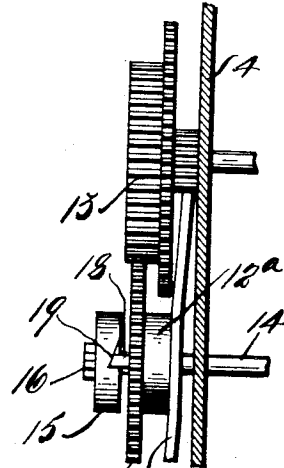
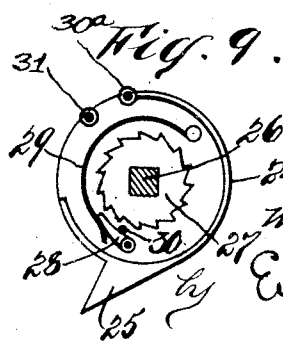
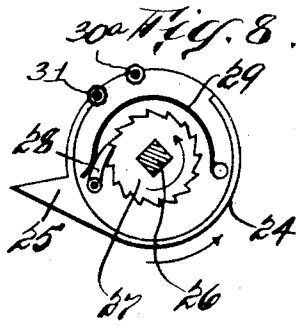
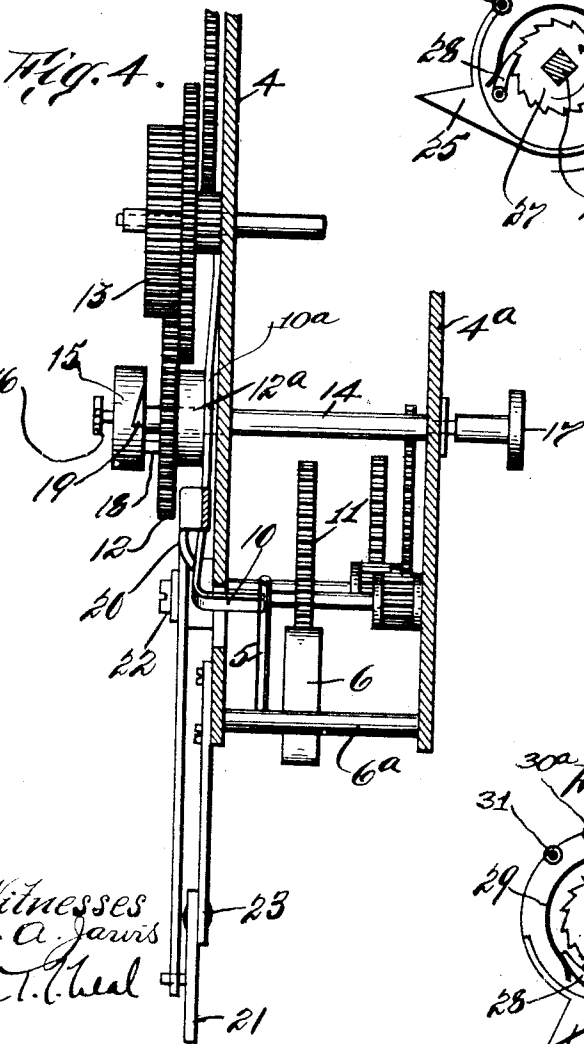
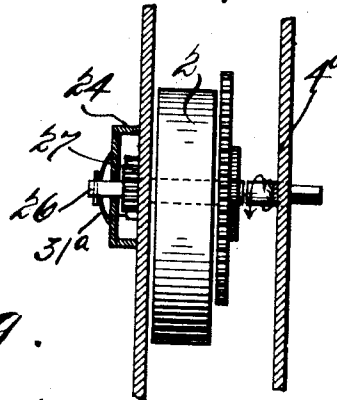


Fig. 8



Witnesses
C. A. Jarvis
C. T. Chel

Inventor
William A. Armour
by Emerson R. Reed
attorney

UNITED STATES PATENT OFFICE.

WILLIAM A. ARMOUR, OF THOMASTON, CONNECTICUT, ASSIGNOR TO SETH THOMAS
CLOCK COMPANY, OF THOMASTON, CONNECTICUT.

ALARM-RESETTING MEANS FOR CLOCKS.

1,040,111.

Specification of Letters Patent.

Patented Oct. 1, 1912.

Application filed April 13, 1909. Serial No. 489,735.

To all whom it may concern:

Be it known that I, WILLIAM A. ARMOUR, a citizen of the United States, residing at Thomaston, county of Litchfield, State of Connecticut, have invented certain new and useful Improvements in Alarm-Resetting Means for Clocks, of which the following is a clear, full, and exact description.

My invention relates to an improvement in alarm resetting mechanism for clocks of the general character described in an allowed application of Lapham and Walker, Serial Number 480,047, filed February 25, 1909, and a patent dated August 25, 1908, No. 896,734.

My invention is particularly adapted for use with an alarm of a continuous type, that is, one which will ring continuously until shut off, and a clock movement which normally runs for a single day and requires re-winding every 24 hours, but my invention may be equally adaptable to any ordinary alarm clock.

My invention will be defined in the claims hereunto annexed.

In the drawings which show a preferred embodiment of my invention; Figure 1 is a view of the entire clock; Fig. 2 is a front elevation of the operating mechanism of the clock and the alarm; Fig. 3 is a section taken from line A—A of Fig. 2 looking in the direction of the arrow with parts removed for the sake of clearness; Fig. 4 is a section along line B—B of Fig. 2 with parts removed for the sake of clearness; Fig. 5 is a detail of the tripping means shown partly in section; Fig. 6 is a side elevation of the tripping means; Fig. 7 is a detached side view of the winding arbor and restoring member partly in section. Figs. 8 and 9 are views beneath of the restoring member in different positions.

The clock casing is indicated by 1 having the usual dial face 1^a. Within the casing are mounted the different operating parts for the time movement and the alarm movement shown in front elevation in Fig. 2. The front and rear face plates composing the clock frame upon which the different parts of the movement are mounted are designated by 4 and 4^a, respectively. The main spring of the time movement is indicated at 2, which through the usual train of gearing common to all clocks gives movement to the hands 8 and 9. Since this train of gearing is

similar to that found in all clocks, I have not thought it necessary to more particularly describe it other than mentioning the fact that the hands receive their movement from the main spring 2. The alarm mechanism comprises a main spring 3 of the alarm movement, which through a suitable train of gearing transmits movement to an operating ratchet 11. A double nose pawl 6 fixed to the shaft 6^a pivotally mounted on the clock frame is adapted to engage the operating ratchet 11 to be rocked thereby, and the hammer 7 of the alarm is mounted on the same shaft 6^a of this operating pawl 6. This is also a usual construction in alarm clocks and it is plain that the hammer 7 of the alarm mechanism is adapted to be vibrated by means of the main spring 3. Extending outwardly from the shaft 6^a is an arm 5 shown more clearly in Figs. 3 and 4, which is adapted to be engaged by stopping member 10 to normally prevent the shaft 6^a and hammer 7 from vibrating. In my preferred construction shown herein the stopping member is located at the end of a leaf spring 10^a firmly secured at the other end to the face plate of the clock movement. The outer end of spring 10^a is bent at right angles as shown in Figs. 3 and 4 to provide the member 10 to engage the arm 5. This stopping member 10 normally tends to spring out of engagement with the arm 5, but is adapted to be held in engagement therewith and periodically released by the tripping means which will now be described.

Extending through from front to rear of the two plates 4 and 4^a of the clock frame is frictionally mounted an arbor 14 but free to turn and having fixed to its front end a setting cam 15 and to its rear end a finger turned button 17. Freely mounted to rotate on this arbor 14 adjacent the operating cam 15 is a pinion 12 having a circular boss portion 12^a which rests against the leaf spring 10^a. The leaf spring 10^a extending across the arbor 14 is suitably perforated to permit the same to extend therethrough. Projecting from the outer face of the pinion 12 is a pin 18 which normally engages and travels around the adjacent face of the cam 15. A notch 19 is formed in this face of the cam 15, into which the pin 18 drops when it reaches the same, which result is effectuated by the spring 10^a, so as to permit the stopping means 10 to spring away from engagement

with the arm 5. The pinion 12 has a sliding movement on the arbor 14 to allow this movement. The pinion 12 is continually in engagement with a wide toothed pinion 13 of the hour hand and is preferably of the same size whereby the tripping means normally releases the alarm once every twelve hours. Fixed to the outer end of the arbor 14 is a hand 16 which runs over the face of the dial 1^a, and a 12 hour dial 16^a is arranged to coöperate with this hand 16, whereby the same may indicate the adjustment of the cam 15. The hand 16 should properly be fixed opposite the notch 19 so as to indicate its position.

The above described mechanism is nearly all old and well known in the art of alarm clocks, and my invention more particularly resides in the combination with this mechanism of devices hereafter described.

Shutting off and restoring mechanism.—Pivoted at 22, on the clock frame is a manually controlled lever 20 having a nose 20^a arranged to engage the upper side of the stopping member 10 and press the same inwardly into engagement with the arm 5. The lever 20 is preferably slotted at its outer end to engage with a pin of hand-operated lever 21 pivoted at 23, whereby it may be rocked on its pivot 22. In dotted lines of Fig. 2 I have shown the shutting off mechanism in its normal position in which the lever 20 does not engage the stopping member 10, and in full lines of said figure the lever 20 is shown as rocked to the right and as engaging the stopping member 10 to hold it in its normal or stopping position. This is the position of the parts after the alarm has been shut-off by hand, and it is plain that the parts would normally remain in this position and prevent the tripping means from releasing the alarm at its next periodic movement, and therefore I have designed a restoring mechanism for restoring the parts 20, 21 to their normal position whereby the alarm is left under control of the tripping means.

Referring more particularly to Fig. 7, a cup-shaped restoring member 24 is shown as loosely mounted upon the outer end of the main spring arbor 26, and fixed to this arbor 26 and within the cup-shaped member 24 is a ratchet 27. The cup-shaped member 24 as shown more clearly in Figs. 8 and 9 is provided with a pivoted pawl 28 on its underside normally held in engagement with the ratchet 27 by means of a spring 29. It is thus seen that the cup-shaped restoring member 24 is normally turned by the winding arbor 26 of the main spring, as long as the pawl 28 and ratchet 27 are in engagement. A pin 30 mounted on the clock frame in the position shown more clearly in Figs. 2 and 9 acts to release the pawl 28 from the ratchet 27 when the operating member 24 has reached this position of its travel.

Thereafter the winding arbor 26 may be freely turned without carrying the restoring member 24 therewith. The restoring member 24 is provided also with a cam face 25, which, when the same is turned by its connection with the arbor 26, engages with the end of the lever 20 and moves the same away from engagement with the stopping member 10. This operation takes place whenever the clock is wound by turning the winding arbor 26. The means for returning the member 24 back to its original full line position shown in Fig. 2 consists preferably of a spring washer 31^a mounted on the outer end of the arbor 26, and adapted to press against the outward side of the cup-shaped member 24, and by its frictional engagement therewith to turn the same back when the arbor 26 is slowly turned by the main spring 2 in the running down of the clock. A portion of the side walls of the cup-shaped member 24 is cut away and stop pins 30^a, 31 fixed to the clock frame as shown in Fig. 2 are normally located within this cutaway and are normally located within this cut-away walls therefore act as abutments, and engaging these pins 30^a and 31 limit its movement of travel in either direction, as shown more clearly in Figs. 8 and 9.

From the above description the operation of my improvement will be clear.

The alarm may be set in the usual way by adjusting the hand 16 of the tripping means opposite any desired hour of the 12 shown in the dial 16^a. When the alarm goes off it may be stopped by throwing the lever 21 to the right and the parts would ordinarily remain in this position and prevent further operation of the alarm, unless some means are provided to restore them. As above described, we have shown this restoring means as connected to the winding arbor of the clock, so that when the person retiring for the night winds his clock the parts will be automatically reset to their initial position ready for the alarm to be again operated by the tripping means.

What I claim is:

1. In an alarm clock, the combination of a time movement, an alarm mechanism, stopping means comprising an impelled member for normally preventing said alarm from operating, tripping means actuated by said time movement to thereby effectuate the releasing of said stopping means and its impelled member to permit the alarm to sound, a member additional to the said stopping means and operated by hand to shut off said alarm mechanism when sounded, and means additional to the said tripping means and operated by the winding of the time movement for restoring said alarm to the control of said stopping means.

2. In an alarm clock in combination, a time movement, an alarm mechanism, a

stopping member for engaging said alarm mechanism to prevent the same from operating, tripping means actuated by said time movement for releasing said stopping member, a device operated by hand to move said stopping member into engagement with said alarm mechanism for stopping the same when the alarm is sounded, and means actuated by the winding of the time movement for restoring said hand-operated member into position ready for a new operation.

3. In an alarm clock in combination, a time movement, an alarm mechanism comprising a vibrating portion, a stopping member for engaging said vibrating portion of said alarm mechanism to prevent said alarm from operating, tripping means actuated by said time movement for releasing said stopping member, a device operated by hand for engaging and moving said stopping member into engagement with said vibratory portion of the alarm mechanism for stopping said alarm when the same is sounded, and means actuated by the winding of the time movement for disengaging said hand-operated member from said stopping member, whereby the same is restored in position ready for a new operation.

4. In an alarm clock in combination, a time movement having a winding arbor, an alarm mechanism, a manually operated device for stopping said alarm mechanism, a restoring member freely mounted on said winding arbor provided with means for being connected to said arbor for movement therewith when said arbor is turned in winding the clock, whereby said restoring mem-

ber acts to throw out said manually operated device from its stopping position.

5. In an alarm clock in combination, a time movement having a winding arbor, an alarm mechanism, a manually operated device for stopping said alarm mechanism, a restoring member freely mounted on said winding arbor, positive means for connecting the same to said arbor for a partial rotation therewith when said arbor is turned in winding the clock, whereby said member acts to throw out said manually operated device from its stopping position, and friction means for connecting said member to said arbor to move therewith in the opposite direction as the arbor is turned in the running down of said time movement, and means to limit the movement of said cam in either direction.

6. In an alarm clock in combination, a time movement having a winding arbor, an alarm mechanism, a manually operated device for stopping said alarm mechanism, an oscillating restoring member arranged to be moved by said arbor when winding the clock to throw out said manually operated device from a stopping position and to be returned in the opposite direction as the arbor is thus turned in the running down of the time movement to permit said manually operated member to be again operated.

Signed at Thomaston, Conn., this 8th day of April 1909.

WILLIAM A. ARMOUR.

Witnesses:

LEVI S. PARSONS,
LENA A. WATROUS.