No. 618,176. Patented Jan. 24, 1899.

# A. JUNGHANS.

## REPEATING ALARM CLOCK.

(Application filed July 1, 1898.)

(No Model.)

Fig. 1.

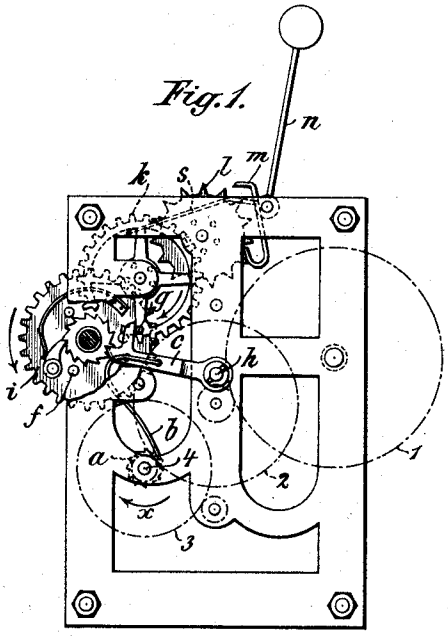



Fig. 2.

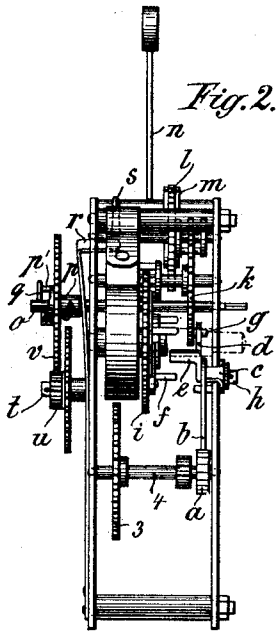
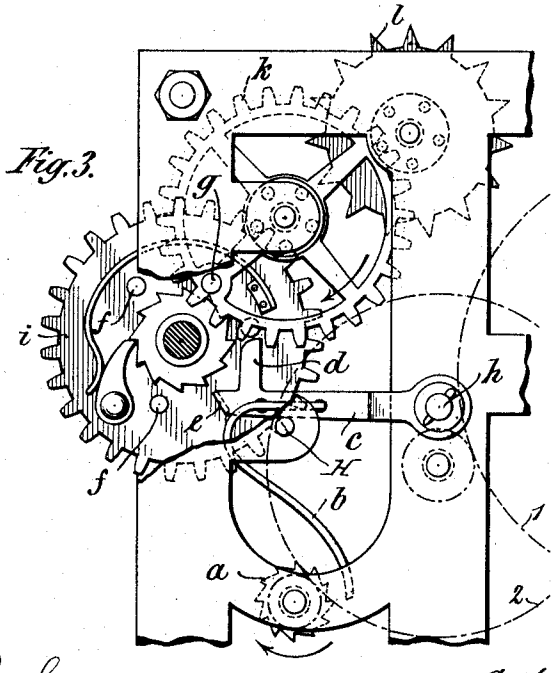



Fig. 3.




Witnesses:
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# UNITED STATES PATENT OFFICE.

ARTHUR JUNGHANS, OF SCHRAMBERG, GERMANY.

## REPEATING ALARM-CLOCK.

SPECIFICATION forming part of Letters Patent No. 618,176, dated January 24, 1899.

Application filed July 1, 1898. Serial No. 684,916. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR JUNGHANS, manufacturer, a subject of the King of Würtemberg, and a resident of Schramberg, Kingdom of Würtemberg, and German Empire, have invented certain new and useful Improvements in Alarm-Clocks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention consists of improvements in alarm-clocks, according to which mechanism is provided for causing the alarm to strike intermittently instead of continuing to ring until the spring has run down.

The invention comprises the details of construction hereinafter set forth, and particularly pointed out in the claims.

In order to render the present specification more easily intelligible, reference is had to the accompanying drawings, in which similar letters and numerals of reference denote similar parts throughout the several views.

Figure 1 is a rear elevation with the framing partly removed to more clearly show the parts behind the same. Fig. 2 is an end elevation showing the parts of the alarm device drawn in full, those of the clockwork being merely diagrammatically indicated; and Fig. 3 is a part rear elevation, drawn to a larger scale and also showing part of the framing broken away.

A ratchet-like wheel *a* is mounted on the spindle 4 of the gear 3, which is driven by the spring-drum 1 of the clockwork and the intermediate gear 2. The member which serves to intermittently operate or arrest the alarm mechanism consists of a pivotally-supported lever *c*, having near its free end an upwardly-extending arm *d* and an inclined laterally-projecting surface *e* at its extremity. The spring-operated wheel or spring-wheel *i* of the alarm device is mounted in the usual manner and operates the hammer *n* of the bell by means of the gear *k* and the striker-wheel *l* in the well-known manner. The wheel *i* of the alarm device is provided with a series of laterally-extending pins *f f* in its face adjacent to the lever *c* and adapted to rotate with the said wheel in the path of the laterally-extending cam-surface *e* of the said lever. The gear *k* is also provided with a corresponding series of laterally-extending pins *g*, adapted to rotate in the path of movement of the upwardly-extending arm *d* of the lever *c* when the latter is raised, as hereinafter described. The lever *c* is provided with a substantially downwardly-extending spring-arm *b*, adapted when the said arm is raised to engage between two of the top teeth of the ratchet-like wheel *a* and to hold the said lever *c* in its upward position for a certain period of time, according to the rate of rotation of the said wheel *a*, which rotates in the direction of the arrow *x* in Fig. 1.

The device for releasing the alarm-clockwork is of the ordinary construction, and consists, as illustrated in Fig. 2, of a gear *u*, mounted on a spindle *t* and engaging a gear *v*, loosely mounted on the shaft *o*, by means of its sleeve *p*, having a cam-surface *p'* at its forward end to engage the radial pin *q*, fast on the shaft *o* of the alarm-hand. The spindle *t* is rotated by the clockwork and turns the wheels *u* and *v*. As soon as this wheel *v* has been turned far enough to bring the deepest part of the spiral cam at its end into contact with the pin *q* the spring *r* pushes the said sleeve forward, withdrawing simultaneously its inwardly-turned end from the arm *s* and releasing the alarm mechanism in the known manner.

H is a pin for supporting the lever *c* when in its lowest position.

The device operates in the following manner: As soon as the alarm mechanism has been released the wheels *i*, *k*, and *l* are set running, the lever *c* being in the position shown at Fig. 3. As one of the pins *f* of gear *i* comes around it lifts the end of the lever *c*, engaging with the inwardly-turned cam-surface *e* of the same. The lever *c* is lifted until its upwardly-extending arm *d* has been brought into the path of rotation of the pin *g* and at the same time the spring-arm *b* engages in the upper teeth of the ratchet-like supporting-wheel *a*, so that after the pin *f* has passed from under the cam-surface *e* the lever *c* will still remain in its upper position and will arrest the alarm mechanism, Fig. 1, until the wheel *a* has turned around in the direction of the arrow *x*, Fig. 1, and lowered the lever *c* far enough to allow the

pin *g* to pass by the upwardly-extending arm *d*, when the alarm again rings. As the wheel *i* again revolves one of its pins *f* again raises the lever *c* and places the arm *d* in the path of the pin *g*, with the arm *b* resting on the wheel *a*. In this manner the alarm is caused to sound intermittently until the alarm-spring has run down.

I claim as my invention--

1. In an alarm-clock having clockwork and alarm mechanism as specified, the combination, of a swinging lever pivotally supported in proximity to the alarm-gearing, means in connection with the alarm spring-wheel to raise said lever, means in connection with the said lever to stop the alarm mechanism, and a movable support to retain said lever for a certain period in its raised position, in the manner and for the purpose substantially as described.

2. In an alarm-clock, the combination, of a series of laterally-projecting pins on the alarm spring-wheel, a pivotally-supported lever in proximity thereto and having a cam-surface to extend into the path of rotation of said pins, a series of laterally-extending pins to the wheel in gear with said wheel, and an upwardly-extending arm to said lever adapted to extend into the path of said pins when the lever is raised, and a rotary support to sustain said lever in its raised position for a certain period and then allow the same to return to its initial position, substantially as described.

3. In an alarm-clock, the combination, of a series of laterally-extending pins on the alarm spring-wheel, a lever mounted in proximity to said wheel and having a cam-surface extending into the path of motion of said pins, a series of pins on the wheel in gear with said wheel, and means in connection with the said lever to engage said pins when the lever is raised, a downwardly-extending spring-arm attached to said lever, and means for periodically sustaining the same to retain the lever in its raised position and then release the same, substantially as described and shown.

4. In an alarm-clock, the combination, of a series of laterally-extending pins to the alarm-wheel, and a lever pivotally mounted in proximity thereto and having a cam-surface to extend into the path of movement of said pins, a series of laterally-extending pins on the neighboring gear-wheel, and means in connection with the said lever to engage the same when the lever is raised, a downwardly-extending spring-arm attached to said lever, and a rotary ratchet-like wheel mounted in proximity thereto and adapted to engage with its uppermost teeth under the end of said spring-arm when the said lever is raised and on rotating further to allow said arm to fall to its initial position in the manner and for the purpose substantially as described and shown.

5. In an alarm-clock, the combination, with a stationary support, and a movable support controlled by the time mechanism; of stop mechanism which rests on the movable support until thrown off by the motion thereof onto the stationary support, and means actuated by the alarm mechanism and operating to raise the said stop mechanism off the stationary support onto the movable support while the alarm is sounding thereby placing it in a position which enables it to stop the alarm, substantially as set forth.

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

ARTHUR JUNGHANS.

Witnesses:
H. WAGNER,
ERNST LEYPOLD.