

**No. 668,032.**

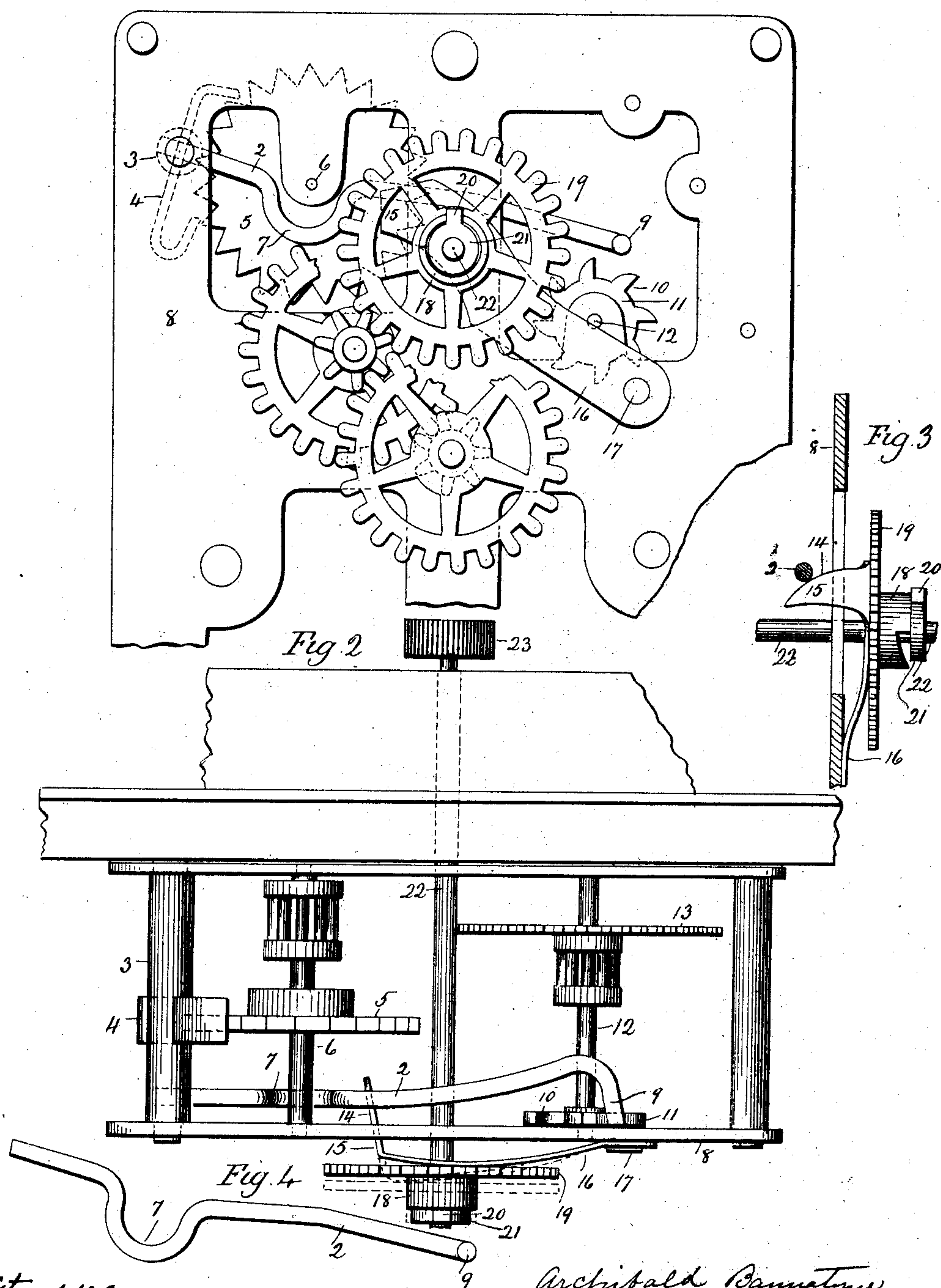
**Patented Feb. 12, 1901.**

**A. BANNATYNE.**  
**REPEATING ALARM CLOCK.**

(Application filed Nov. 30, 1900.)

(No Model.)

Fig. 1



Witnesses  
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# UNITED STATES PATENT OFFICE.

ARCHIBALD BANNATYNE, OF WATERBURY, CONNECTICUT, ASSIGNOR TO  
THE WATERBURY CLOCK COMPANY, OF SAME PLACE.

## REPEATING ALARM-CLOCK.

SPECIFICATION forming part of Letters Patent No. 668,032, dated February 12, 1901.

Application filed November 30, 1900. Serial No. 38,117. (No model.)

*To all whom it may concern:*

Be it known that I, ARCHIBALD BANNATYNE, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new  
5 Improvement in Repeating Alarm-Clocks; and I do hereby declare the following, when taken in connection with the accompanying drawings and the numerals of reference marked thereon, to be a full, clear, and exact  
10 description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in front elevation of a clock-movement provided with my improvement; Fig. 2, a plan view thereof; Fig. 3, a  
15 detail sectional view thereof, showing the action of the alarm-set spring with the alarm-lever; Fig. 4, a detached view of the alarm-lever.

20 My invention relates to an improvement in that class of alarm-clocks in which the action of the alarm is made more effective by being produced intermittently, the object of the present invention being to produce an ex-  
25 tremely simple and reliable alarm mechanism for carrying out the described principle of operation.

With these ends in view my invention consists in certain details of construction and  
30 combinations of parts, as will be hereinafter described, and pointed out in the claims.

In carrying out my invention as herein shown I employ an alarm-lever 2, consisting of a piece of wire having its inner end rigidly  
35 secured to the forward end of a verge-arbor 3, carrying an ordinary verge 4, coacting with an ordinary crown-wheel 5, mounted upon a crown-wheel arbor 6, for the clearance of which the lever 2 is formed with a down-  
40 wardly-extending loop 7. The said lever, which is located adjacent to the inner face of the front movement-plate 8, so as to extend in a general horizontal direction, is formed at its free or outer end with a forwardly-pro-  
45 jecting finger 9, which coacts with the cam-like teeth 10 of an intermittent alarm-wheel 11, mounted upon the forward end of the arbor 12 of the second wheel 13 of the time-  
50 train, which does not need further description.

Normally the finger 9 of the alarm-lever 2 is

held in an elevated and therefore retired or inoperative position by the direct engagement with it of the beveled upper edge 14 of a finger 15, turned inwardly from the free end of a flat sheet-metal alarm-set spring 16, riveted  
55 directly to the outer face of the front movement-plate 8 by means of a rivet 17, as clearly shown in Figs. 1 and 2. This spring 16 exerts a constant effort, by reason of its elasticity, to spring forward and withdraw its finger 15  
60 from engagement with the alarm-lever, but is pushed inward and normally so held by the action of a tubular alarm-set cam 18, located upon the dial-wheel 19 and coacting with the  
65 finger 20 of a collar 21, located upon the projecting forward end of the alarm-setting arbor 22, the rear end of which is provided with a knurled button 23, by means of which the arbor is turned in one direction or the other against the force of friction, which is relied  
70 upon to hold it in its set positions. When, however, the operation of the time-train of the movement brings the drop of the tubular cam 18 into registration with the finger 20 of the collar 21, the spring 16 reasserts itself  
75 and pushes the cam 18 and the wheel 19 outward, and thus permits the finger 15 to spring away from the lever 2 sufficiently to permit the same to descend into its operative position.

If the finger 9 of the alarm-lever 2 falls be-  
80 tween any two teeth of the wheel 10, the alarm-train will be released and the alarm will immediately begin to sound and keep on sounding until the action of the cam-face of a tooth of the wheel has lifted the lever sufficiently  
85 to relock the verge 4 into the crown-wheel 5. Then as soon as the rotation of the alarm-wheel by the time-train permits the finger 9 to drop down between the two next succeeding  
90 teeth of the wheel the alarm-train will again be freed, and the alarm will again sound until the rotation of the wheel has again lifted the alarm-lever, so as to lock the verge into the crown-wheel again, and so on. The in-  
95 tervals between the sounding of the alarm will thus depend upon the number of teeth upon the alarm-wheel and may be regulated accordingly.

I would call particular attention to the fact that by means of my improvement I have a 100



single alarm-lever which coacts directly with the alarm-wheel and which is acted directly upon by an alarm-set spring of the character and operation of such springs in ordinary alarm-clocks. It will thus be seen that I have greatly simplified the construction of repeating alarm-clocks and made their operation more effective and reliable and less apt to be deranged.

I would have it understood that I do not limit myself to the exact construction and arrangement of parts herein shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. In a repeating alarm-clock, the combination with the verge-arbor of an alarm-train, of an alarm-lever mounted in the said arbor, an alarm-wheel driven by the time-train of the clock and adapted to coact with the said lever, and an alarm-set spring acting directly

upon the said lever and normally holding it out of coaction with the said wheel.

2. In a repeating alarm-clock, the combination with the verge-arbor of an alarm-train, of an alarm-lever mounted at one end in the said arbor, and located adjacent to the inner face of the front movement-plate, an alarm-wheel located upon the arbor of the second wheel of the time-train in position to coact with the outer or free end of the said alarm-lever, an alarm-set spring coacting directly with the said lever between its ends, and holding the same normally out of coaction with the said alarm-wheel, a dial-wheel and cam coacting with the said alarm-set spring, a collar coacting with the said cam, and an alarm-set arbor upon which the said collar is mounted.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ARCHIBALD BANNATYNE.

Witnesses:

A. J. STORZ,

G. W. WATSON.