

Sept. 26, 1933.

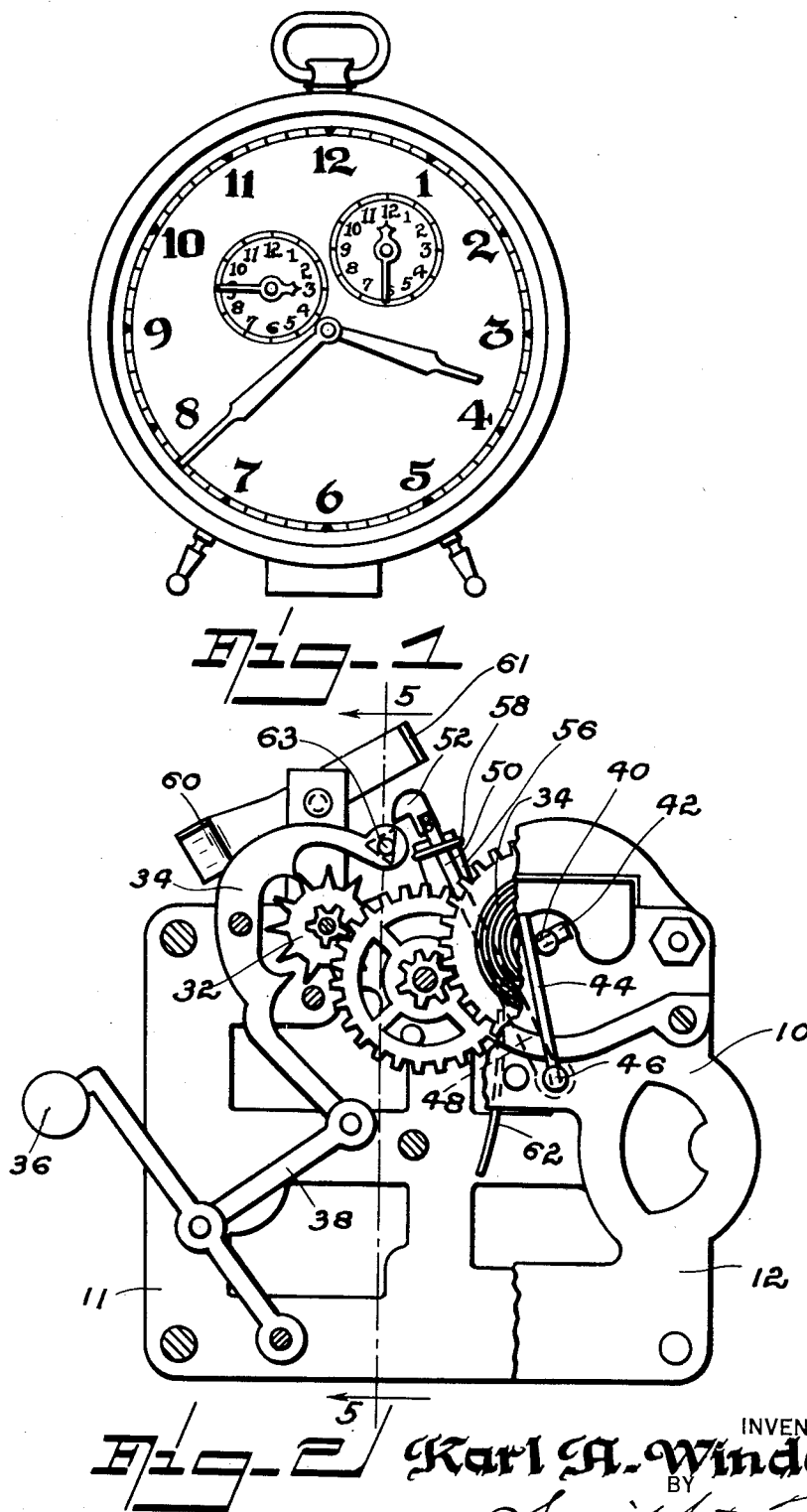
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1,928,040

DUAL ALARM MECHANISM

Filed Sept. 29, 1931

3 Sheets-Sheet 1



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Sept. 26, 1933.

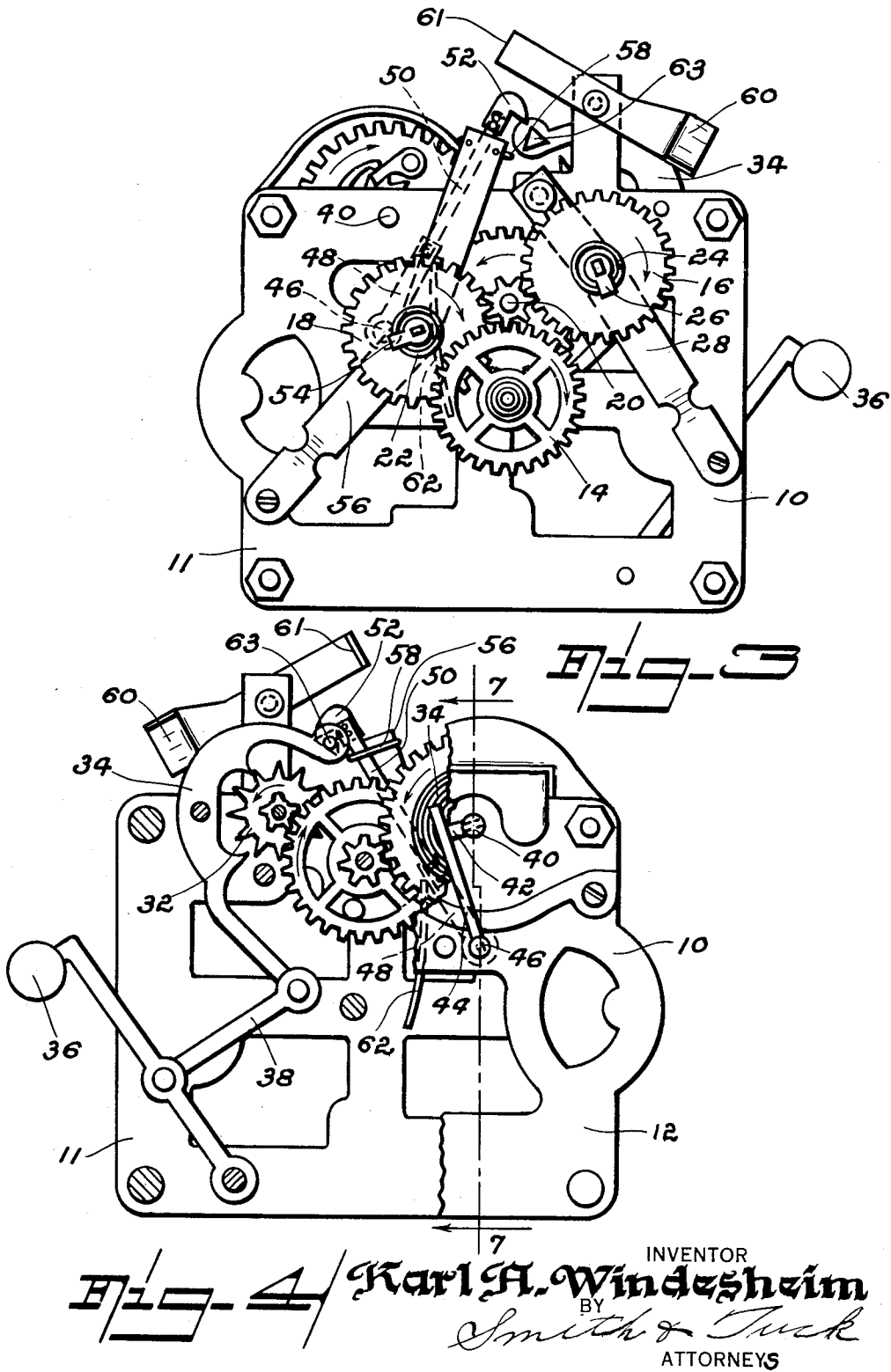
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DUAL ALARM MECHANISM

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3 Sheets-Sheet 2



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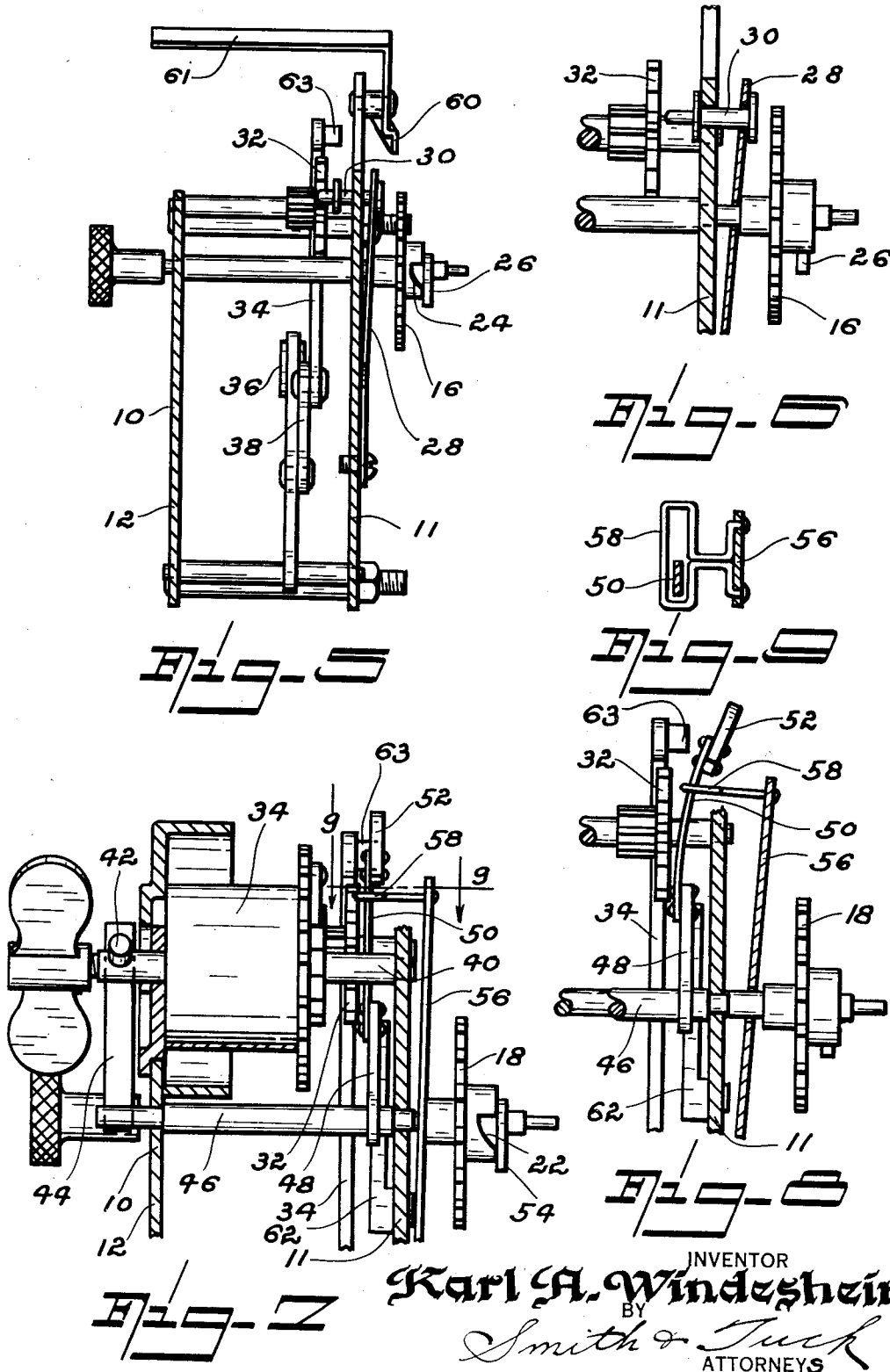
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DUAL ALARM MECHANISM

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UNITED STATES PATENT OFFICE

1,928,040

DUAL ALARM MECHANISM

Karl A. Windesheim, Seattle, Wash.

Application September 29, 1931
Serial No. 565,753

6 claims. (Cl. 58—16)

My present invention relates to the art of clock mechanism and more particularly to a dual alarm mechanism.

Many arrangements have been provided with the aim of making an alarm clock a certain means of rousing a sleeping person. Various repeating mechanisms have been created but they so often do not serve the purpose required. Further, it is often desirable for two people, to be called at different times; in other words, it may be desirable for one to get up, say, thirty minutes before the other and it is very convenient to have an alarm mechanism that will awaken both parties at the desired time. There are times, of course, when it might be desirable, for the one to get up an hour or more ahead of the other. Now, it is evident, of course, and must be admitted, that most any of the standard alarm clocks could be reset for the second call. This is a very unsatisfactory arrangement, however, as the average person getting up and leaving home in a hurry is much more apt to forget to reset the alarm mechanism than if they set the two alarms at the time they are winding the clock; or, in the case of an electric clock, to set both alarms at the same time.

It is, therefore, the principal object of my invention to provide within a single mechanism means which will enable the setting of two differently timed alarms.

A further object is to provide a dual alarm mechanism both of which alarms will use the same striking mechanism and the same motive spring.

Other and more specific objects will be apparent from the following description taken in connection with the accompanying drawings, wherein

Figure 1 is a face view of an alarm clock constructed after the principles of my invention.

Figure 2 is a back view of the mechanism showing the essential alarm elements, only with certain parts further broken away to better illustrate the same.

Figure 3 is a view similar to Figure 2, excepting viewed from the front of the clock.

Figure 4 is a view similar in all respects to Figure 2 except the primary alarm is locked against use.

Figure 5 is a sectional view taken along the line 5—5 of Figure 2.

Figure 6 is an enlarged fragmentary view of a portion of Figure 5, showing the alarm mechanism of the primary alarm in its released position.

Figure 7 is a fragmentary cross sectional view along the line 7—7 of Figure 4.

Figure 8 is a fragmentary sectional view of a portion of Figure 7 showing the secondary alarm in its released position.

Figure 9 is a fragmentary sectional view along the line 9—9 of Figure 7 showing the pawl loop.

Referring to the drawings throughout which like reference characters indicate like parts, numeral 10 designates the main clock frame. This is normally composed of two members as 11 and 12 which are bolted together in the manner common to this type of construction. The framework I have illustrated is that of a well known alarm clock and I wish to make it clear that my auxiliary mechanism can be applied to the standard alarm clock with very little, if any, changes in their standard parts.

I have purposely avoided any illustration of the clockwork mechanism, as it forms no part of my invention and I have illustrated only those essential elements which are strictly a part of the alarm mechanism except that I have shown one clock member 14 on whose center are mounted the hour and minute hands of the clock. This gear also forms the driving means for the escape cam drive gears 16 and 18 respectively. These are driven from gear 14 by means of the long pinion 20. The escape cams may be any conventional type, such as the notched type shown more clearly at, for instance, 22, in Figure 7, and 24 in Figure 5.

The principle employed here, which is old in alarm mechanisms, is that gear 16, for instance, to which the cam 24 is secured, is driven by the clock mechanism and when the alarm lug 26 drops into notch 24 the spring 28 forces the gear and cam outwardly. This normally releases the alarm mechanism of the average clock. In my mechanism, however, I provide that this outward movement of member 28 carries with it the floating pin 30 which normally is disposed between the teeth of the escapement wheel 32. This in my present invention releases the first or primary alarm. The alarm is driven by the coil motor spring 34 and as it drives the alarm mechanism the escapement wheel 32, acting through the pivoted escapement bar 34 can be made to actuate any form of alarm striker 36. In the present instance I have used an auxiliary connecting link 38.

As the spring drives this mechanism it gradually unwinds and thus revolves the winding shaft 40. Attention is invited at this point to the necessity of completely winding up spring 34. Any other well known expediency can be employed to assure this complete winding. The locking pawl,

for instance, can be arranged to only secure the spring when it is fully wound as desired or at least when it is wound to such an extent that shaft 40 with the cam post 42 will come to rest in the position indicated in Figure 2. Now, as shaft 40 revolves carrying with it cam 42, it will eventually contact and push to the left, as viewed in Figures 2 and 4, the ratchet lever 44. This is cross connected, by means of shaft 46 which is journaled within side plates 11 and 12, to the ratchet arm 48. Ratchet arm 48 has secured to it a flat spring 50 which is of considerable depth as viewed in Figure 7, but comparatively thin so that it may be easily bent sideways but still will have sufficient force in the opposite plane to hold pawl 52 securely. When cam 42 has progressed far enough pawl 52 is forced into engagement with the escapement lever 34 as illustrated in Figure 4. This action shuts off the primary alarm and no further action can take place until the clock mechanism has moved cam 22 to a position where lug 54 will engage it.

The positioning of lug 54 is determined by the time setting made. When lug 54 and its corresponding notch 22 are in coincidence spring 56 moves to the right as viewed in Figures 7 and 8. This carries with it the loop 53 which is secured to it and loop 58 in turn engages spring 50 and moves it together with pawl 52 to the right and thus releases the alarm mechanism again for the secondary and final alarm. I wish it to be borne in mind that my primary and secondary alarms can, if it is so desired, be operated by any of the various intermittent mechanisms.

In order to reset my primary alarm I provide the cam member 60 which is pivoted to the clock frame and has the operating lever 61 which extends outwardly to where it can be grasped. This is after the manner of the usual alarm shutoff. Now as cam 60 is rocked about its pivot it will engage pin 30 and press it inwardly, or to the left as viewed in Figures 5 and 6. Thus pin 30 will be caused to engage in between the teeth of gear or sprocket 31 and lock the mechanism ready for future operation.

I have found it very desirable to provide means for holding latch 52 out of the engagement with the escapement lock 63. This I have provided in the spring 62 which is anchored to the clock frame and adapted to bear against ratchet arm 48 and so constantly urge it away from engagement with block 63. Now it has been found necessary to provide that latch 52, will at all times engage lock 63. It being apparent I believe that the block changes its position considerably as lever 34 oscillates about its pivot. Consequently I have found it desirable to mount block 63 so it may rotate about its longitudinal axis and in this way whenever latch 52 engages it, it will revolve block 63 so that complete engagement with one of the flat sides of block 63 can be effected.

The foregoing description and the accompanying drawings are believed to clearly disclose a preferred embodiment of my invention but it will be understood that this disclosure is merely illustrative and that such changes in the invention may be made as are fairly within the scope and spirit of the following claims:

What I claim is:

1. A dual alarm mechanism for an alarm clock consisting of an alarm striker; escapement means, adapted to actuate said striker; motive means disposed to energize said escapement means; engaging means disposed to engage said

escapement means; an escape cam, capable of being timed to release said engaging means at any desired time; a pawl disposed to engage said escapement means independently of said engaging means; a support for said pawl consisting of a rockable shaft, a pawl support, yieldable along the plane of said shaft, securing the pawl to one end of said shaft, a ratchet lever secured to said shaft at its opposite ends and cam means adapted to operate said shaft to move the pawl in a plane normal to said shaft; a spring secured at one end and disposed to move in the plane of said shaft; a loop secured to said spring and encircling said pawl support; and a second escape cam adapted to operate said spring and release the escapement means at a timed interval after the first operation of the escapement means.

2. A dual alarm mechanism for an alarm clock consisting of an alarm striker; escapement means, adapted to actuate said striker; motive means disposed to energize said escapement means; engaging means disposed to engage said escapement means; an escape cam, capable of being timed to release said engaging means at any desired time; a pawl disposed to engage said escapement means independently of said engaging means; a support for said pawl consisting of a rockable shaft, means yieldable along the plane of said shaft securing the pawl to one end of said shaft, a ratchet lever secured to said shaft at its opposite ends and cam means adapted to operate said shaft to move the pawl in a plane normal to said shaft; and a second escape cam adapted to disengage said pawl and release the escapement means at a timed interval after the first operation of the escapement means.

3. A dual alarm mechanism for an alarm clock consisting of an alarm striker; escapement means, adapted to actuate said striker; motive means disposed to energize said escapement means; locking means disposed to engage said escapement means; an escape cam, capable of being timed to release said locking means at any desired time; a pawl disposed to engage said escapement means independently of said lock means; a pivoted ratchet arm; a pawl support, operatively connecting the ratchet arm and the pawl, yieldable along the axis of the ratchet arm pivot, and a second escape cam adapted to disengage said pawl and release the escapement means at a timed interval after the first operation of the escapement means.

4. A dual alarm mechanism for an alarm clock consisting of an alarm striker; escapement means, adapted to actuate said striker; motive means disposed to energize said escapement means; locking means disposed to engage said escapement means; an escape cam, capable of being timed to release said locking means at any desired time; a pawl disposed to engage said escapement means independently of said lock means; supporting means for the said pawl arranged in a manner which permits said pawl being moved sideways, and a second escape cam adapted to disengage said pawl and release the escapement means at a timed interval after the first operation of the escapement means, and means for manually varying the time intervals between alarms.

5. A dual alarm mechanism for an alarm clock consisting of an alarm striker; escapement means, adapted to actuate said striker; motive means disposed to energize said escapement means; a floating pin disposed to engage said escapement means; an escape cam, capable of

being timed to release said floating pin at any desired time; a pawl disposed to engage said escapement means independently of said engaging means; and a second escape cam adapted to disengage said pawl and release the escapement means at a timed interval after the first operation of the escapement means, and means for manually varying the time intervals between alarms.

6. A dual alarm mechanism for an alarm clock consisting of an alarm striker; escapement means, adapted to actuate said striker; motive means disposed to energize said escapement means; locking means disposed to engage said escapement means; an escape cam, capable of being timed to release said locking means at any desired time; a pawl disposed to engage said escapement means independently of said lock means; and a second escape cam adapted to disengage said pawl and release the escapement means at a timed interval after the first operation of the escapement means, and means for manually varying the time intervals between alarms.

KARL A. WINDESHEIM.

15	90
20	95
25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150