

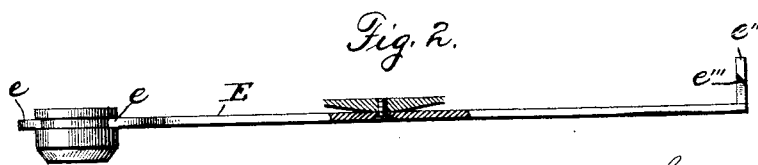
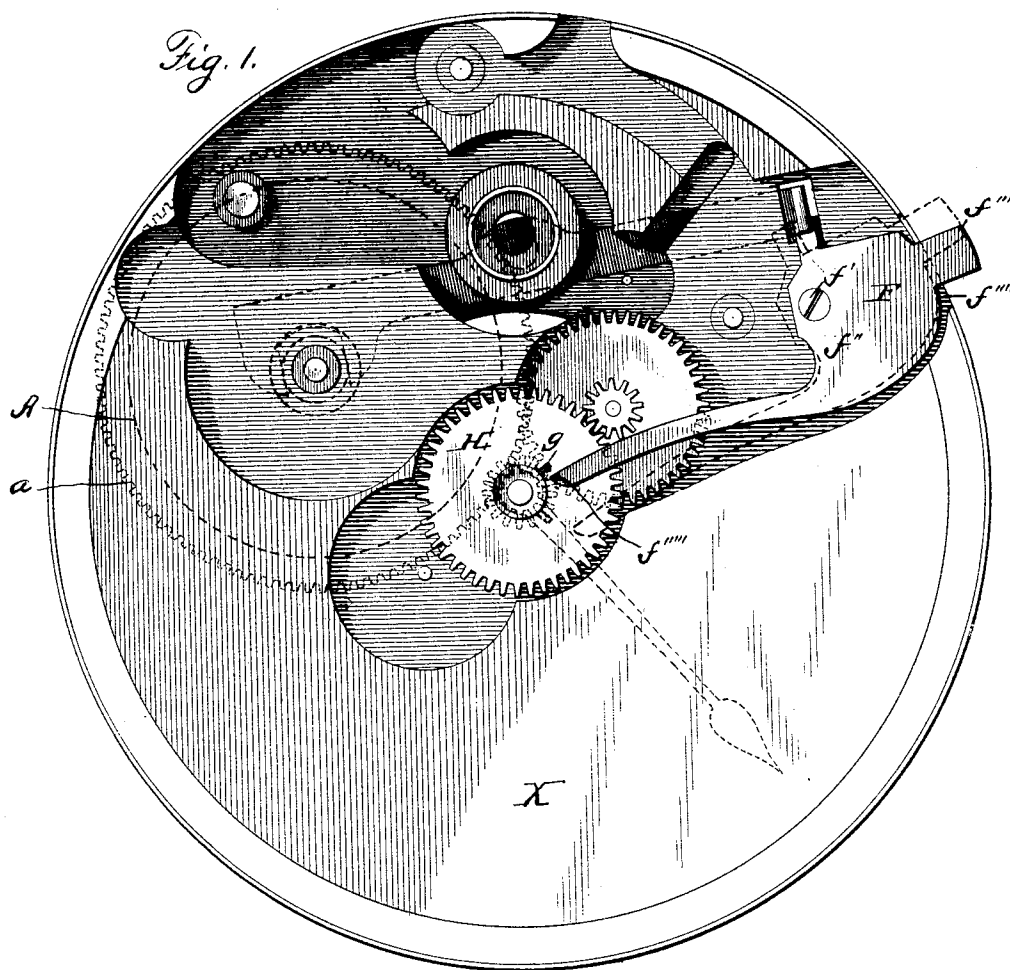
(No Model.)

3 Sheets—Sheet 1.

J. W. NUNAMAKER.
ALARM FOR WATCHES.

No. 537,303.

Patented Apr. 9, 1895.



Witnesses: 9"
John Enders Jr. 9'
Thos. F. Tompkins. 9'

Fig. 3. 9

by

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John W. Nunamaker.
Thomas J. Rodman.

Attorney

(No Model.)

3 Sheets—Sheet 2.

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Fig. 4.

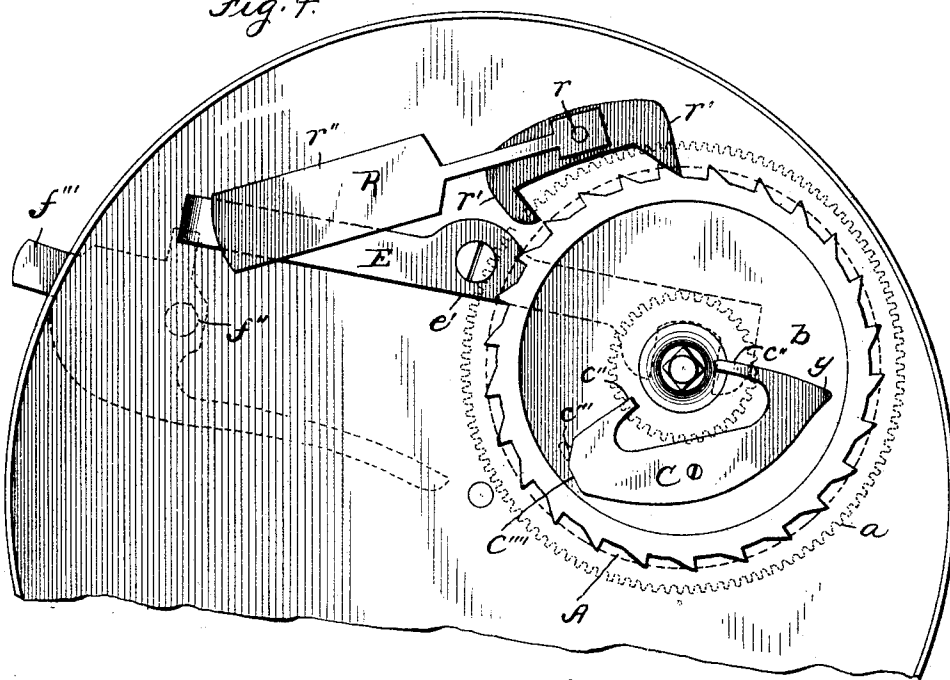


Fig. 5.

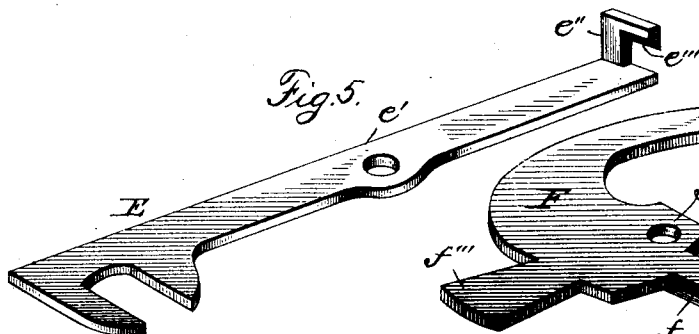


Fig. 6.

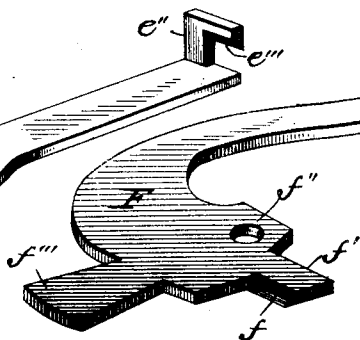


Fig. 8.

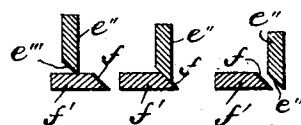


Fig. 7.

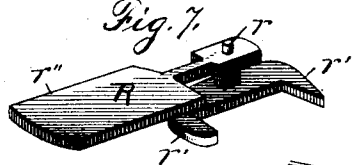
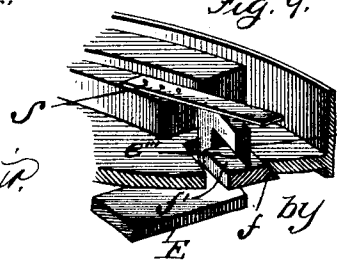


Fig. 9.



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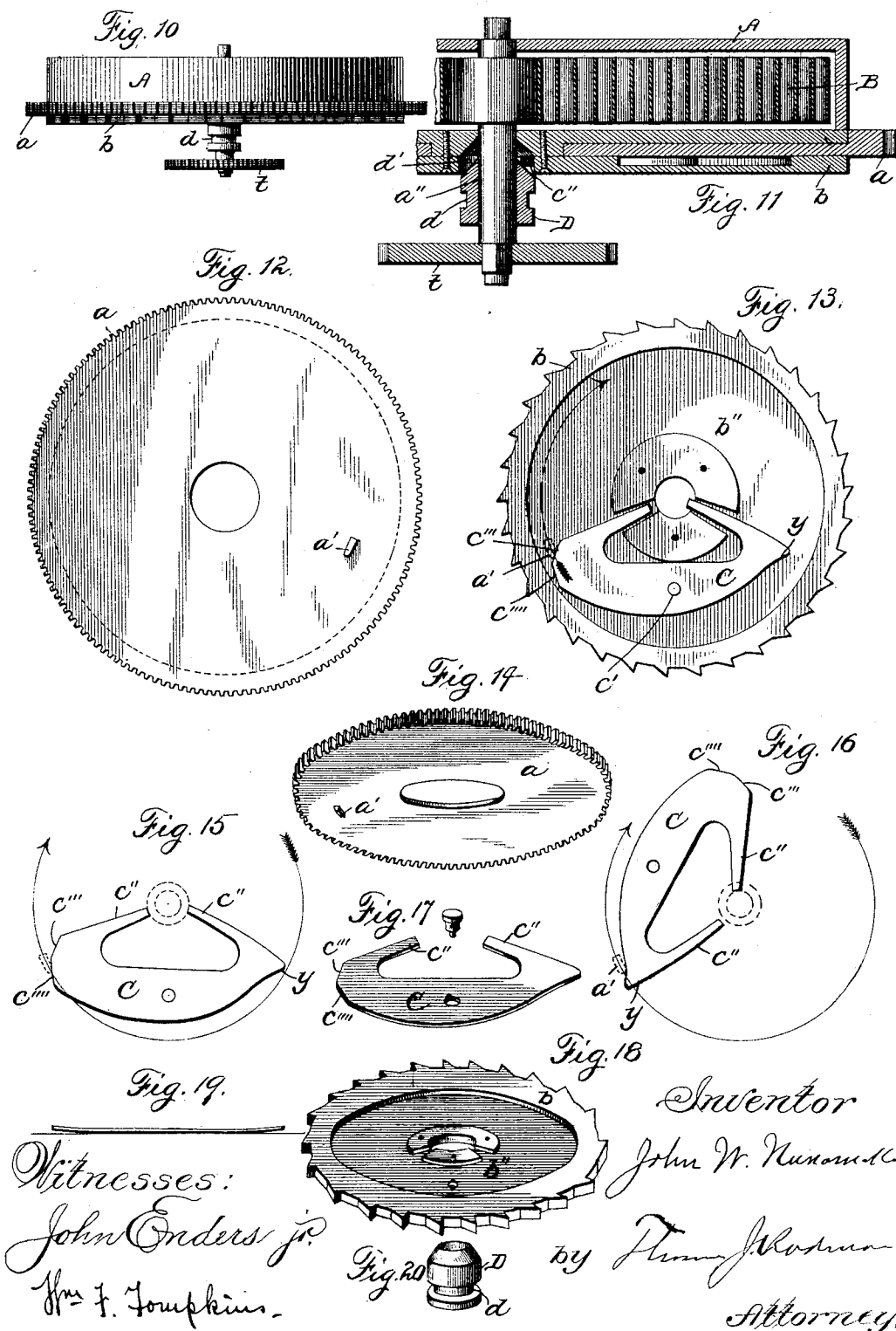
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UNITED STATES PATENT OFFICE.

JOHN W. NUNAMAKER, OF CHICAGO, ILLINOIS.

ALARM FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 537,303, dated April 9, 1895.

Application filed August 13, 1894. Serial No. 520,227. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. NUNAMAKER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Alarms for Watches, of which the following is a specification.

My invention relates to improvements in alarm mechanism to be applied to watches, and consists of certain devices for actuating the alarm by the main spring, and setting, starting and throwing off the same as may be required; and the object of my invention is to utilize that part of the main spring which is attached to and runs the drum or barrel of the watch for actuating the alarm mechanism. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents a plan view of so many of the works of a watch as are necessary to be shown to embody my invention looking down upon the front or dial plate; Fig. 2, a detailed view in elevation and partly in vertical section of the movable collar lever, movable collar and part of plate upon which said lever rocks; Fig. 3, a detailed view in perspective of the alarm adjusting hand; Fig. 4, a plan view partly broken away showing the reverse side of watch shown in Fig. 1, looking down upon the under side of dial plate and embracing so much of the mechanism of the watch as is necessary to embody my invention; Fig. 5, a detailed view in perspective of the movable collar lever; Fig. 6, a detailed view in perspective of the hand lever; Fig. 7, a detailed view in perspective of the striking hammer and pallets; Fig. 8, a detailed vertical section of the different engaging parts of Figs. 5 and 6; Fig. 9, a detailed perspective view of engaging parts of Figs. 5 and 6; Fig. 10, a detailed side view of the drum, with escape wheel and movable collar, driving gear and ratchet wheel shown; Fig. 11, a cross section enlarged and partly broken away of Fig. 10; Fig. 12, a detailed top view of driving wheel *a*, shown in Fig. 10; Fig. 13, a detailed bottom view of escapement wheel shown in Figs. 10 and 11 showing lock in position. Fig. 14, a detailed perspective view of driving wheel; Figs. 15 and 16, detailed top views of lock; Figs. 17 and 18, top views of escapement wheel showing lock seat and lock unseated; Fig. 19, a cross section of lock; Fig.

20, a detailed view in perspective of movable collar.

Referring to the drawings in which similar letters refer to similar parts throughout the several views: X, is the dial plate to which is engaged in the usual way the drum A, carrying the main spring B, of the watch. The drum A, is provided with the driving gear *a*, escapement wheel *b*, and arbor *a''*. The driving gear *a*, is fitted loosely on the drum so as to turn independently of it and is provided with the pin *a'*, located on its face next to the escapement wheel and at a point near its circumference, all as shown in Figs. 12, 13, and 14. The escapement wheel *b*, is attached to the drum so as to turn with it and is provided with the lock-seat *b''* on its face next to the gear *a*, as shown in Fig. 13, in which is seated the lock C, of shape shown in Fig. 13, pivoted at *c'*. The lock C, is provided with the two horns *c'' c''* and the inclined faces *c^{III}*, *c^{IV}*, against which the pin *a'* engages, and has its ends slightly sprung upward as shown in Fig. 19. The arbor *a''* carries the winding ratchet wheel *t*, between which and the escapement wheel plays vertically the collar D, into and out of the collar seat *d'* and has its engaging end of truncated cone shape, and its other end provided with the annular recess *d*, as shown in Figs. 11 and 20. The driving gear *a*, lock C, escapement wheel *b*, and collar D, come together in the order shown in Figs. 14, 17, 18, and 20. Within the recess *d*, are the fingers *e*, *e*, of the vertically rocking lever E, as shown in Figs. 1, 2, 4, and 5; said lever being pivoted at *e'* and having its other end provided with the elbow *e''*. Said elbow extends upward through an opening in the dial plate and engages with the lever F, as follows: The lower edge *e'''* of the elbow *e''* is beveled as shown in Fig. 5, while the edge *f*, of the finger *f'*,—the latter being a part of the lever F,—is also beveled so that when the lever F, is horizontally moved it causes the elbow *e''* to ride upward upon the finger *f'* the several operations being shown as in Fig. 8. The lever F is pivoted at *f''* and is provided at one end with the thumb knob *f'''* extending out of the edge of the watch movement and playing in the slot *f''''* while its other end extends inwardly from the circumference of the watch movement so that it may engage with the trip-pin *g*, at *f'''''* as shown in Fig. 1. The trip-pin *g*, is fastened to the collar *g'* and the latter sur-

rounds the tube g'' . The upper end of said tube g'' carries the alarm hand G, as shown in Figs. 1 and 3. The alarm hand G, by means of the last described device is fitted to the

hour wheel H, friction tight.

Referring to Fig. 4, there is shown pivoted to the top and bottom plates at r , of the watch the alarm hammer lever R, one end r'' being the hammer head and the other end being provided with the pallets $r' r'$ engaging with the teeth of the escapement wheel b , causing the hammer head r'' to beat upon the inside of the watch movement—or a gong attached thereto not shown in the drawings—as the escapement wheel revolves.

My improved alarm mechanism for watches operates as follows, viz: The alarm is always set at twelve o'clock so that if it is desired to have the alarm strike at say two o'clock, it is necessary to set the alarm hand at ten o'clock. The alarm hand having been properly set as indicated above, the movement of the alarm hand G, in the said setting does not disturb the accuracy of the watch as it is fitted only friction tight to the hour wheel H. The trip-pin g , will be so located that it will take the hour wheel just two hours to revolve far enough to engage with the end f'''' of the lever F, which has been put in the position indicated in Fig. 1, by means of the thumb knob f''' which has been moved downward so that the finger f' engages with the under beveled side of the elbow e'' thereby raising said elbow and that end of the lever F, to which it is attached, causing its other end to be depressed so that the movable collar D, is thrust into the collar seat d' and its truncated cone shape thrusts the horn c'' of the lock C, into the position shown in Fig. 15. Before this action takes place, the lock is in position shown in Figs. 11 and 13, having the pin a' of the driving gear a , held firmly in position against the sloping side c''' of the lock, and the horn c'' of the lock C, projecting inward toward the arbor as shown in Fig. 11, thereby securely locking the driving gear a , and escapement wheel b , together. After the above operation the pin a' is in position shown in Fig. 15 and is held against the side c'''' of the lock still keeping the driving gear a , and escapement wheel b , locked by reason of the pressure of the main spring on the drum and consequently on the escapement wheel to which the latter is affixed. This is the position of the parts after the alarm mechanism is set. As soon as the proper time has elapsed, the trip-pin g , engages with the end f'''' of the lever, causing it to turn horizontally around the pivot f'' and assume the position shown in the dotted lines as seen in Fig. 1. At the same time the finger f' is released from the elbow e'' of the lever E, and said elbow and the end of the lever to which it is attached is caused to be depressed by the action of the horn c'' shown in Fig. 11 acting against the sloping side of the truncated cone shape of the collar D. As soon as the collar D, is

withdrawn from the collar seat d' the lock C is enabled to resume the position shown in Fig. 13, so that the lock between the gear wheel a , and the escapement b , is broken and the barrel and escapement wheel make one entire revolution, during which, the pin a' comes in contact with the end y , of the lock C, and throws it to the first position described. While the escapement wheel is revolving it operates the hammer lever and its pallets in the usual manner so as to cause an alarm. Should the pressure of the horn c'' against the truncated cone shape of the collar D, be insufficient to unseat the said collar, the spring S, Fig. 9, may be applied to aid the same.

I am aware that prior to my invention, watch alarms have been used which are operated by the main spring of the watch. Hence I do not claim that feature broadly, but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In an alarm for watches in combination with the drum A, provided with the loose gear a , and escapement wheel b , provided with the lock C, the levers E, and F, and trip-pin g , for operating same, and the hammer R, provided with the pallets $r' r'$ substantially as described.

2. In an alarm for watches in combination with the drum A, provided with the main spring B, loose driving gear a , and escapement wheel b , the latter provided with the lock C, the lever E and collar D, operated by the lever F, and trip pin g , for operating said lever, and the hammer R, provided with the pallets $r' r'$ substantially as described.

3. In an alarm for watches in combination with the drum A, provided with the main spring B, for operating same, the loose driving gear a , provided with the pin a' , the escapement wheel b , provided with the lock C, and the lever E, provided with the collar D, and elbow e'' the lever F, provided with the finger f' and trip pin g , for operating said lever, and the hammer R, provided with the pallets $r' r'$ substantially as described.

4. In an alarm for watches in combination with the drum A, actuated by the spring B, and provided with the loose driving gear a , carrying the pin a' , and the escapement wheel b , provided with the lock C, and actuating the pallets $r' r'$ of the hammer R, the lever E, engaged with and operating the collar D, and provided with the elbow e'' having the beveled face e''' , the lever F, provided with the stop knob f''' and finger f , and having the beveled face f' to engage with the face e''' of the lever E, the hour wheel H, actuating the alarm hand G, provided with the collar g' and trip-pin g , for operating said lever, substantially as described and for the purpose set forth.

JOHN W. NUNAMAKER.

Witnesses:

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