

W. E. PORTER.
ALARM CLOCK.

APPLICATION FILED SEPT. 30, 1908.

Patented Apr. 27, 1909.

2 SHEETS—SHEET 1.

919,765.

Fig 1

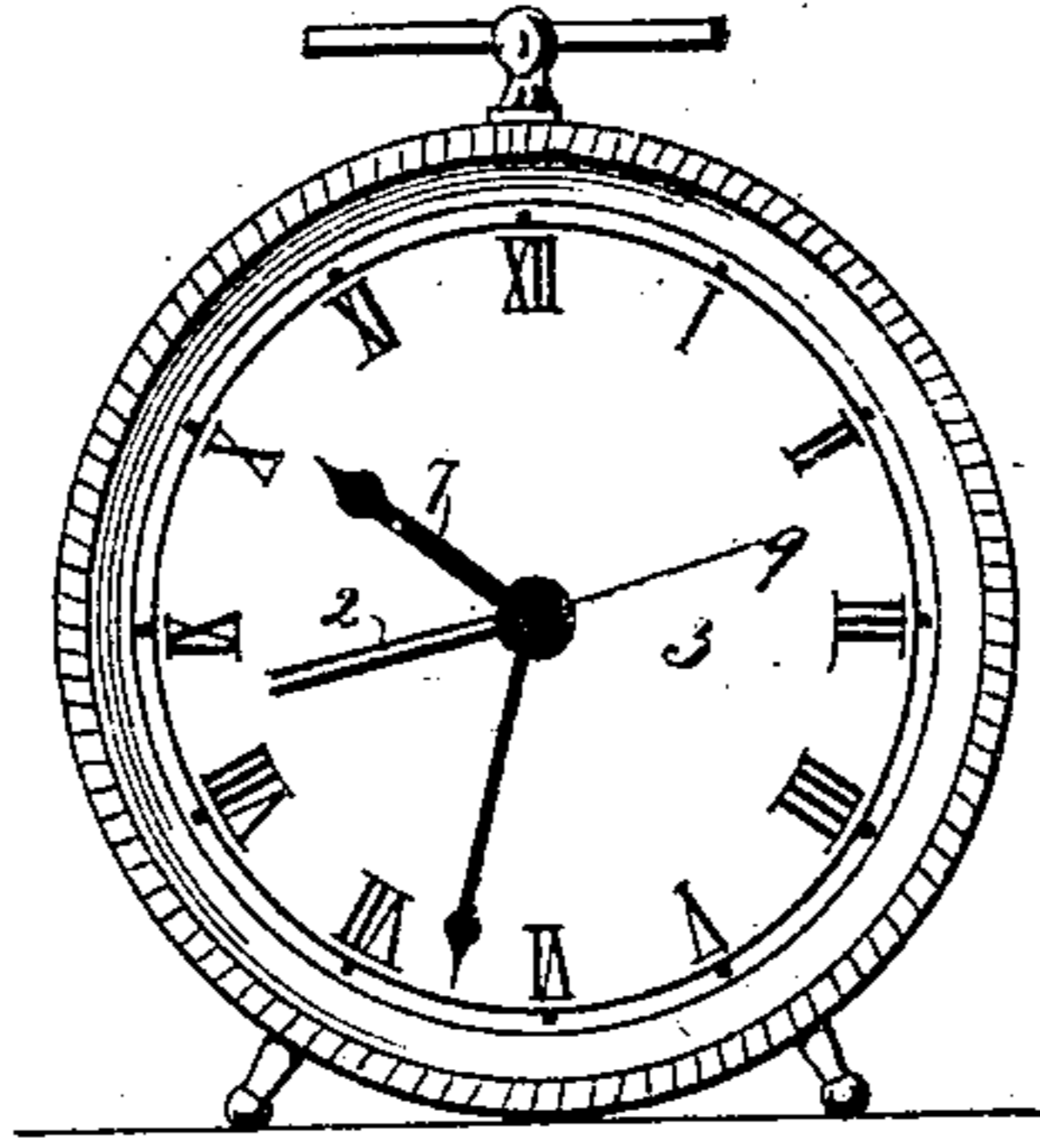
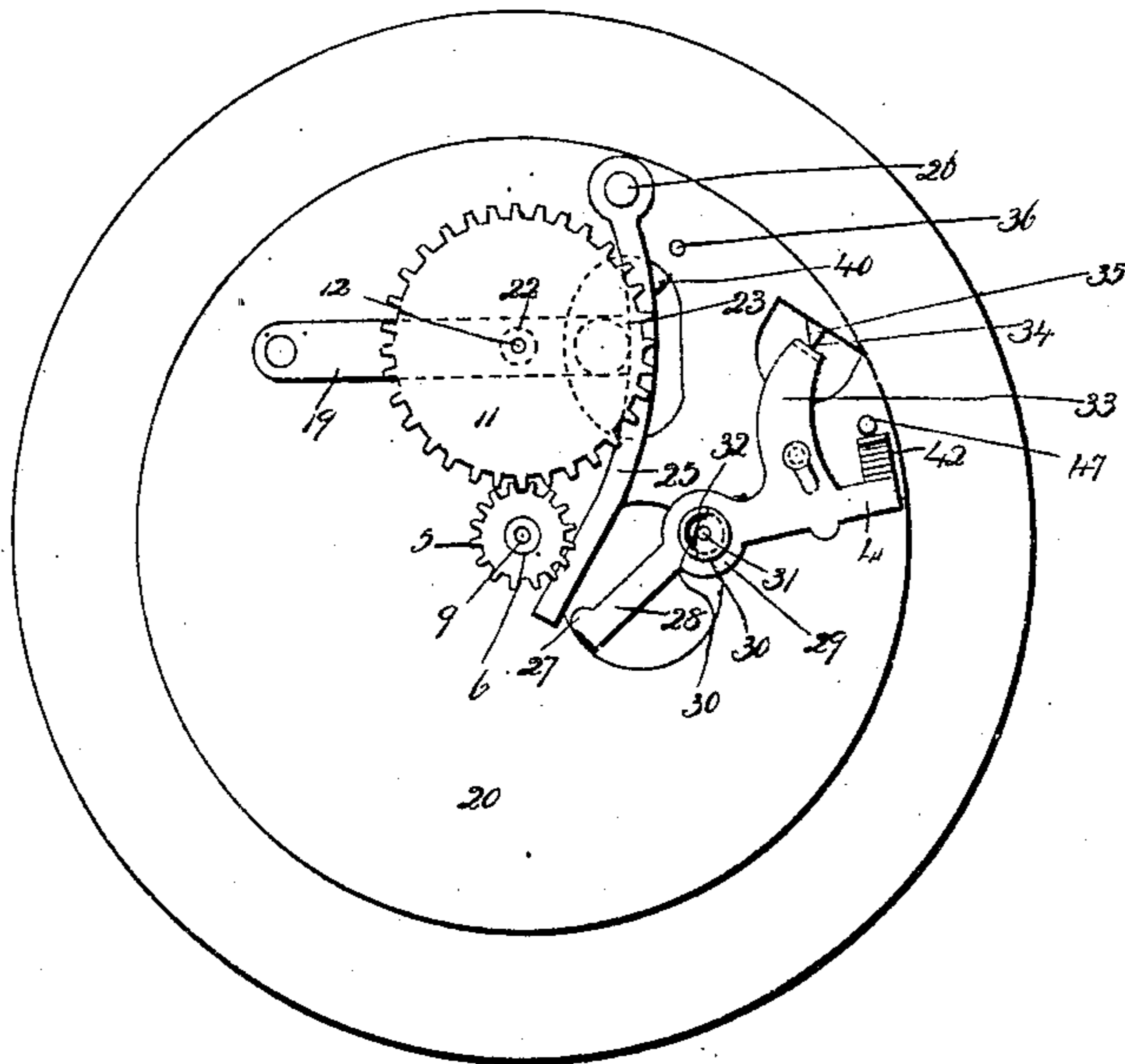


Fig 2



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ALARM CLOCK.

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2 SHEETS—SHEET 2.

919,765.

Fig. 3.

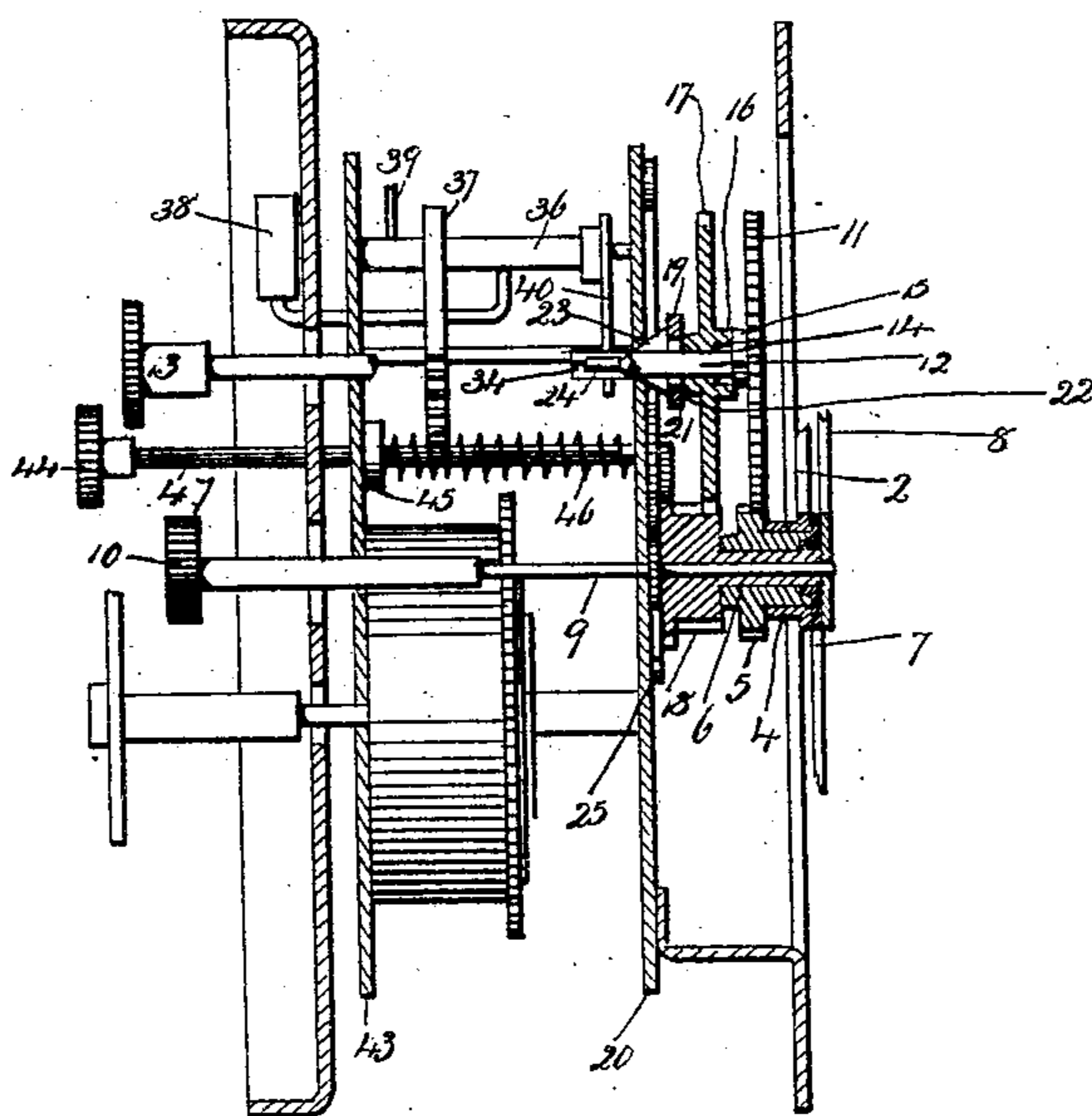


Fig 4.

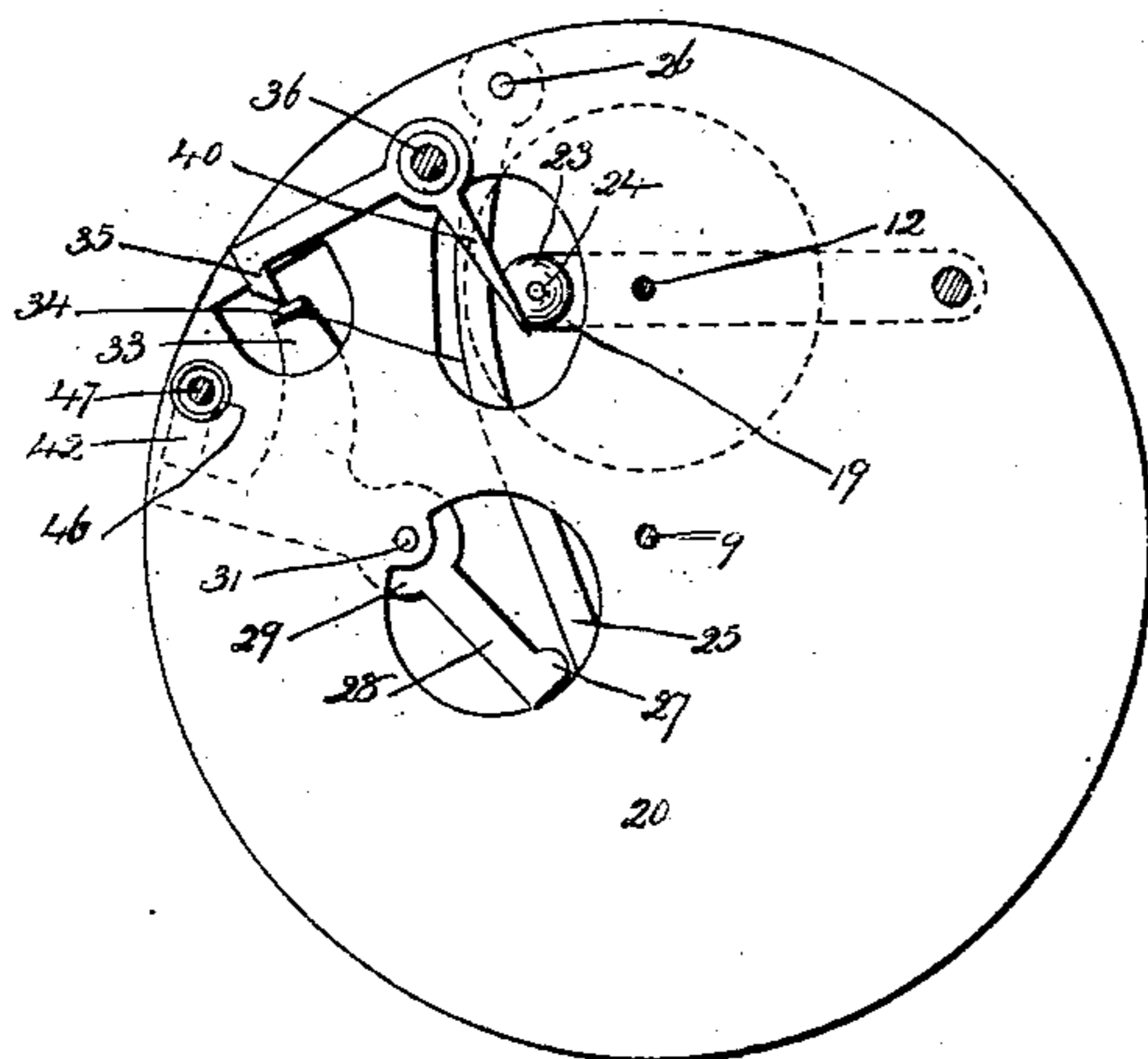


Fig 5.

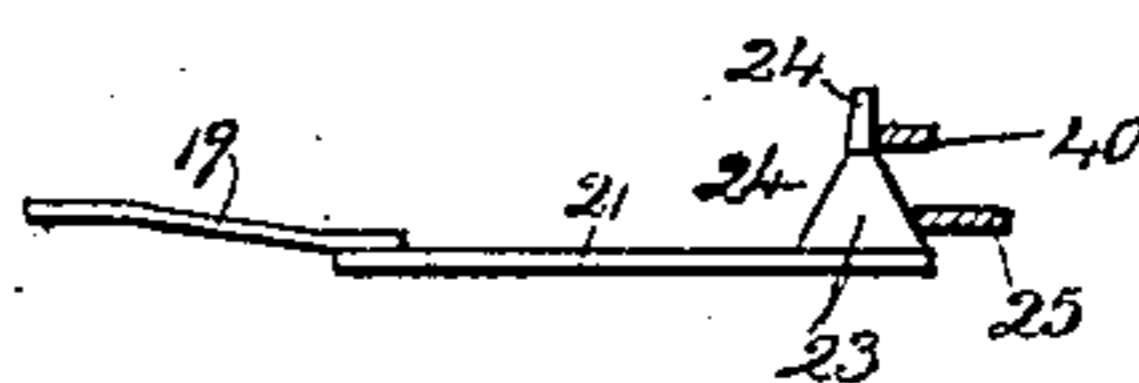
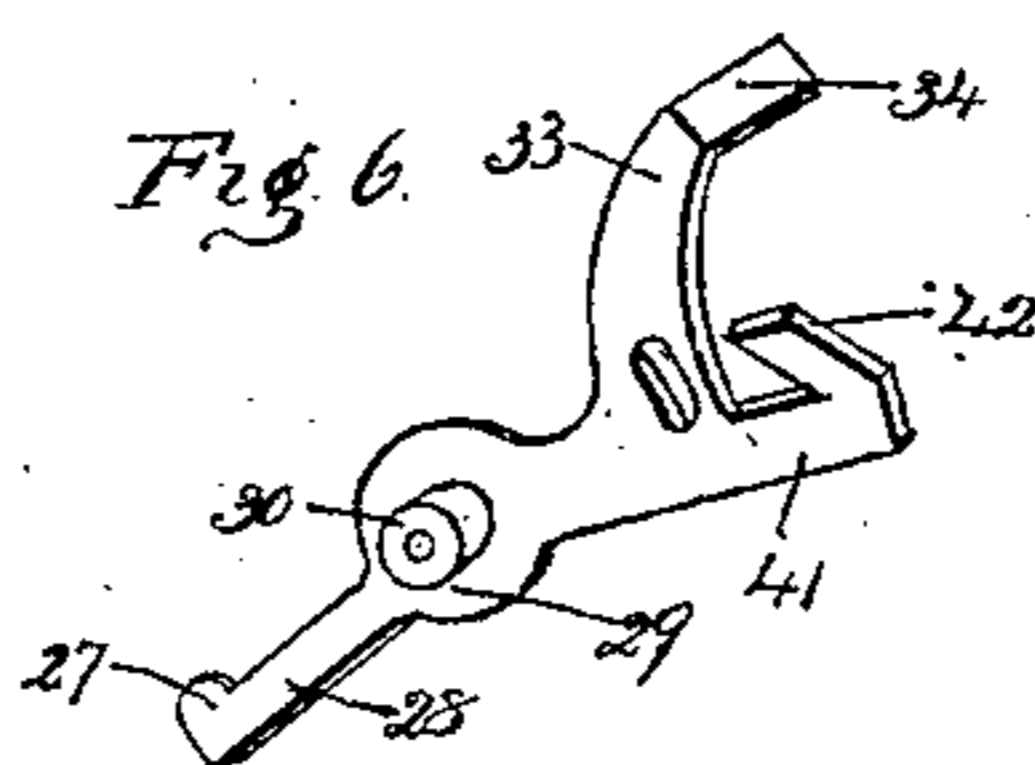


Fig 6.



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UNITED STATES PATENT OFFICE.

WILSON E. PORTER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO NEW HAVEN CLOCK CO.,
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ALARM-CLOCK.

No. 919,765.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed September 30, 1908. Serial No. 455,508.

To all whom it may concern:

Be it known that I, WILSON E. PORTER, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in 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 description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a view in front elevation of an alarm-clock constructed in accordance with my invention. Fig. 2 a view thereof with the dial removed. Fig. 3 a broken view of a clock in vertical section with the pointers arranged in vertical line. Fig. 4 a view in inside elevation of the front movement-plate showing the main parts of the alarm-mechanism. Fig. 5 a plan view of the alarm spring showing the locking-lever and warning-finger in section. Fig. 6 a detached perspective view of the locking-lever.

My invention relates to an improvement in that class of alarm clocks constructed so that the alarm is sounded only once in twenty-four hours, and utilizing the standard twelve-hour time-dial for setting the alarm in place of a special alarm dial, the object of my present invention being to provide a clock of the character described with a cut-off or switch which must be manually operated for stopping the alarm, whereby the person awakened is compelled to get out of bed and stop the sounding of the alarm which will otherwise keep on ringing until the alarm-spring runs down. This present application, I may add, is related to the application filed by me January 8th, 1908, Serial No. 437,342, disclosing a clock of the same character, but having means for automatically stopping the alarm after a predetermined period of sounding.

With these ends in view my invention consists in a clock having certain details of construction and 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-hand or pointer 2 arranged concentrically with a standard twelve-hour time-dial 3 which is utilized for setting the alarm in place of the special

alarm-dial commonly used. The said alarm-hand 2 has a spring-bushing 4 adapting it to be frictionally mounted upon an alarm-setting pinion 5 turning loosely upon the hour-hand socket 6 upon which the hour-hand 7 is frictionally mounted, the minute hand 8 being applied to the projecting outer end of the center-shaft 9 the projecting rear end of which is furnished with a knurled finger-button 10. The pinion 5 aforesaid is meshed into and turned by an alarm-setting wheel 11 fixed upon the projecting forward end of an alarm-setting shaft 12 located at one side of the center-shaft 9 and furnished at its projecting rear end with a knurled finger-button 13 and at its forward end with a let-off collet 14 formed with a let-off tooth 15 coacting with an alarm-cam 16 mounted upon the forward face of an alarm-wheel 17 turning upon the alarm shaft 12 on which it has longitudinal movement, and meshing into an alarm-pinion 18 rigid with the hour-hand socket 5 and therefore making a revolution once in 12 hours. As there are twice as many teeth in the alarm-wheel 17 as in the alarm-pinion 18, the alarm-cam 15 completes a revolution only once in 24 hours. The action of the cam 16, which is driven by the time-train of the clock-movement, upon the tooth 15 of the alarm-collet 14 causes the alarm-wheel 17 to be moved from front to rear upon the shaft 12 against the tension of an alarm-spring 19 secured to the front face of the front movement-plate 20 and carrying a plate 21 having a perforation 22 through which the alarm-shaft 12 passes. The said plate 21 carries a conical lifting-cam 23 terminating in a concentric warning pin 24. The said cam 23 operates a lifting-lever 25 hung at its upper end from a stud 26 in the front movement-plate 20 and engaging at its lower end with a lug 27 upon the lifting arm 28 of a locking-lever 29 having a hub 30 by means of which it is mounted upon a stud 31 in the front movement-plate 20. A friction spring 32 encircling the hub 30 of the locking-lever 29, is provided for holding the lever at the limit of its oscillating movement upon the stud 31. The said locking-lever 29 has an upwardly extending stop-arm 33 having an inwardly turned stop-finger 34 coacting with a sheet-metal stop-hook 35 mounted upon the forward end of an oscillating verge-arbor 36 carrying a verge 37, a bell hammer 38, and a shut-off wire 39, the said verge-ar-

bor and the parts carried by it belonging to the alarm-train which is of ordinary construction and need not therefore be particularly described. The said verge arbor 36
 5 also carries a warning-arm 40 made in one piece, as shown with the stop-hook 35, and extending downward into position to coact with the warning pin 24 before mentioned.

The construction thus far described corresponds to that in my prior application already referred to.

Instead of providing for sustaining the sounding of the alarm for a predetermined period as in the clock of my prior application, I provide, in the clock of my present
 15 invention, for continuing the sounding of the alarm until it is manually cut off, whereby the person awakened by the alarm is obliged to get up out of bed and shut it off or otherwise
 20 listen to it until the spring of the alarm-train runs down. With this end in view the locking-lever 29 is provided with a manual cut-off arm 41 having a cut-off finger 42 bent to stand obliquely in front of the forwardly
 25 projecting beveled end of a manual cut-off in the form of a push-rod 47 having bearing in the front movement-plate 20 and in the rear movement-plate 43, the projecting rear
 30 end of the said rod being furnished with a push button 44. At a point just in front of the plate 43, the rod 47 is furnished with a fixed collar 45 forming an abutment for the rear end of a spring 46 encircling the rod and
 35 abutted at its forward end against the front movement-plate 20, this spring exerting a constant effort to hold the push rod 42 into its retired position.

The operation of my improved alarm clock is as follows: The alarm is set to go off as desired
 40 by means of the finger-button 13 which is turned to sweep the alarm hand 2 clockwise over the twelve-hour time-dial 3. The alarm having been set, the operation of the time-train will effect the rotation and conse-
 45 quently rearward movement of the alarm-wheel 17, whereby the conical lifting-cam 23 will be pushed rearward with the effect of operating the lifting-lever 25 which will in turn turn the locking-lever 29 upon its stud
 50 31. As the lever 29 is swung upon its stud 31, the stop-finger 34 of its stop-arm 33 will be moved out from under the stop-hook 35 carried by the verge-arbor 36. This permits the hook 35 to drop, but the alarm-train will
 55 not be left off because as the hook 35 drops, the warning-finger 40 is brought into engagement with the warning-pin 24 at the end of the cam 23. All this takes place directly after the last preceding sounding of the
 60 alarm, say, within an hour or two. The alarm-train is then held by the engagement of the warning-finger 40 with the warning-pin 24 for the remainder of the twenty-four hours when the "drop" of the alarm-cam 16
 65 is brought into registration with the tooth 15

of the let-off collet 14. At this instant, the alarm-spring 19 acts to push the alarm-wheel 17 forward on the alarm-shaft 12, whereby the warning-pin 24 is moved forward and disengaged from the lower end of
 70 the warning-finger 40. This permits the alarm-train to start sounding the alarm which will now be sounded without intermission until the spring of the alarm-train runs down unless the person awakened gets
 75 up out of bed and stops the sounding of the alarm by using the push-button 44 to push the rod 47 forward. When this is done the rounded forward end of the said rod, collides with the finger 42 of the locking-lever 29 and
 80 forces the said lever to turn on said stud 30 against the tension of the friction spring 32, whereby the stop-finger 34 of the stop-arm 33 of the said lever will be brought under the stop-hook 35 carried by the verge-arbor 36
 85 which will in this way be prevented from further vibration. The spring 32, one end of which is shown in Fig. 2, encircles the hub 30 which is shown in Fig. 6. As soon as forward pressure upon the push button 44 is
 90 removed, the spring 46 thereof returns the same to its retired position, but the locking-lever will by its friction spring 32 be retained in the position in which it was left by the forward movement of the push-rod and there-
 95 fore in position to prevent the alarm-train from running until the said lever 29 is automatically operated for the clearance of its stop-finger 34 from the stop-hook 35 by the lifting of the lever 25 by the cam 23 in the
 100 next operative cycle of the alarm-mechanism. It will thus be seen that while the sounding of the alarm will continue until the alarm spring runs down, unless it is manually stopped by the person awakened, the
 105 alarm mechanism does not require to be manually thrown on, so to speak, as that is automatically accomplished by the time-train of the clock before the alarm will again be used, or within the next twenty-four
 110 hours. The alarm will therefore go off again at the end of twenty-four hours without any further attention on the part of the person using the clock.

I claim:—

1. In an alarm-clock, the combination with an alarm-mechanism including a lever, of a push-rod manually operated to move the said lever into position for arresting the alarm-train, and means operated by the
 120 time-mechanism for automatically moving the said lever into its alarm-sounding position after its operation by the said push-rod.
2. In an alarm-clock, the combination with a twelve-hour time-dial which is utilized
 125 for setting the alarm, of an alarm-hand arranged concentrically with the said twelve-hour time-dial, of an alarm mechanism, means located at one side of the center of the said dial and operated by the time-mechan- 130

ism of the clock once in twenty-four hours for automatically releasing the said alarm-mechanism once in twenty-four hours, an alarm-setting mechanism also located at one side of the center of the dial and geared to the said alarm-hand, and manually operable means for stopping the alarm-train after its automatic release by the means aforesaid.

3. In an alarm clock, the combination with an alarm-mechanism including a lever formed with a cut-out finger, of a push-rod coacting with the said finger to turn the said lever into position for stopping the alarm-train, and means operated by the time-train for moving the said lever into its alarm-sounding position.

4. In an alarm-clock, the combination with a twelve-hour time-dial which is utilized for setting the alarm, of an alarm-hand ar-

ranged concentrically with the said twelve-hour time-dial, means located at one side of the center of the said dial and operated by the time-mechanism of the clock for releasing the alarm-mechanism of the clock once in twenty-four hours, the said means including a lever having a stop-finger and a cut-out finger, and a normally retired spring-controlled push-rod coacting with the cut-out finger of the said lever to throw the lever into position for bringing its stop-finger into play for stopping the alarm-train.

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

WILSON E. PORTER.

Witnesses:

GEORGE D. SEYMOUR,
CLARA L. WEED.