

T. E. H. BUCHANAN.
ALARM.
APPLICATION FILED JAN, 20, 1908.

900,145.

Patented Oct. 6, 1908.

Fig 1

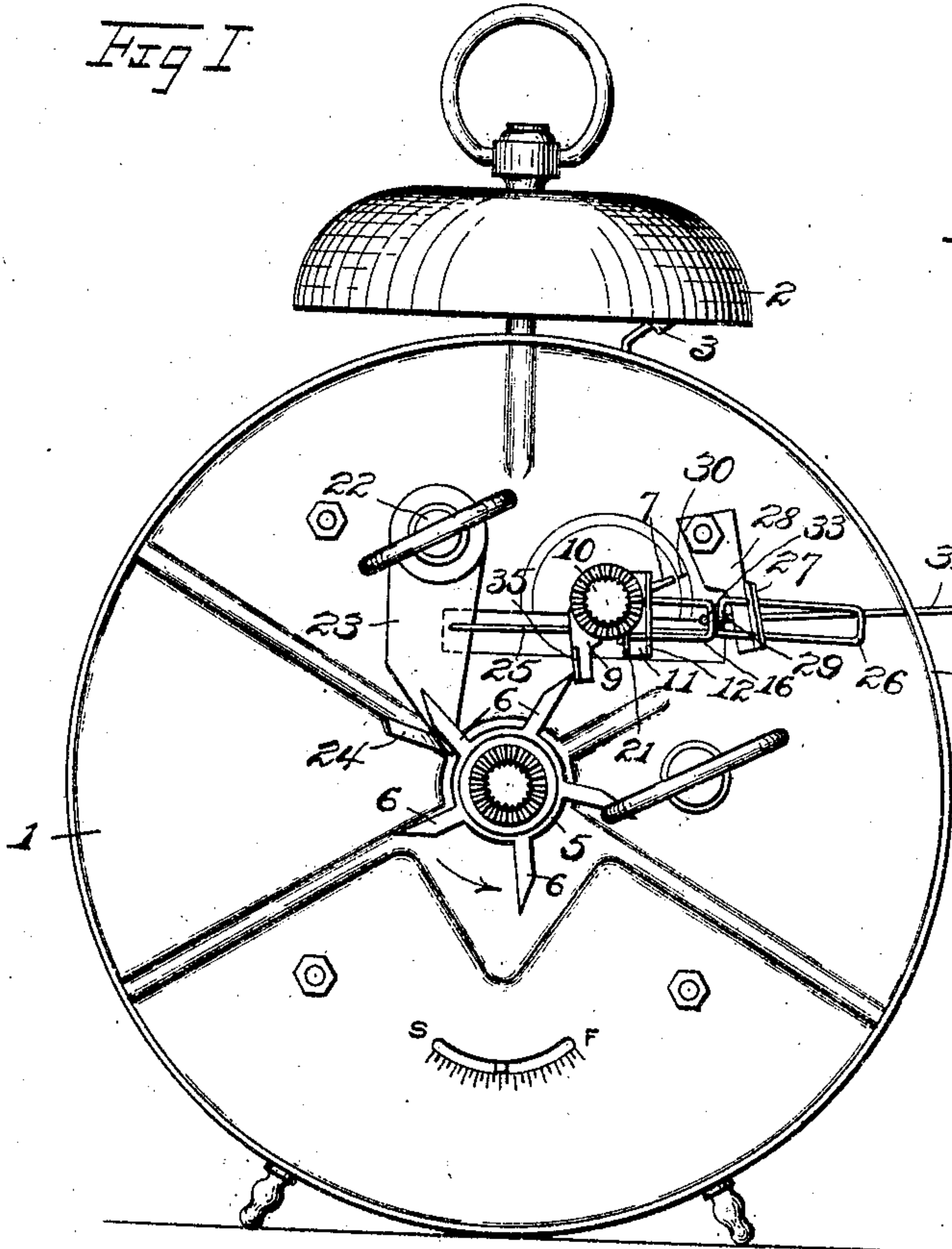


Fig 2

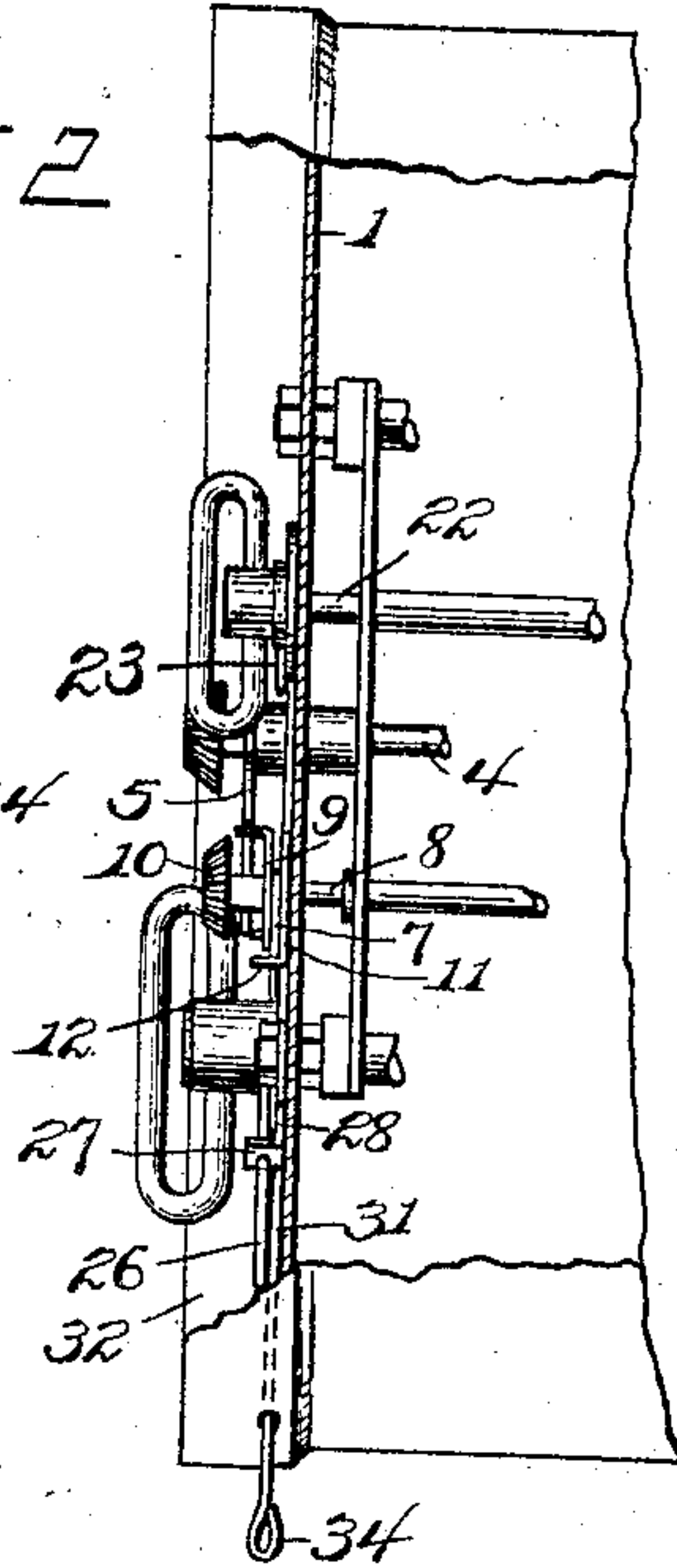


Fig 3

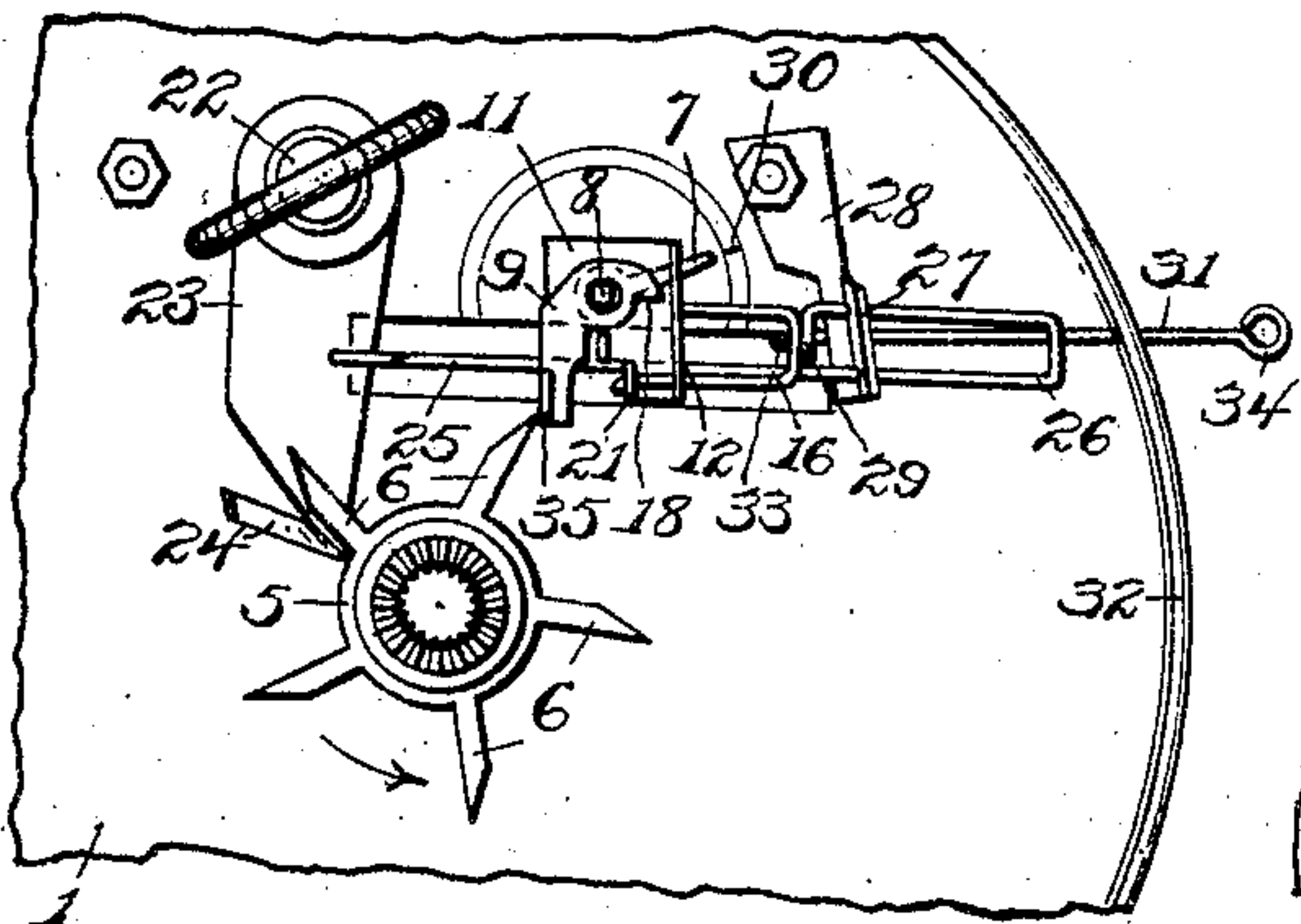


Fig 4

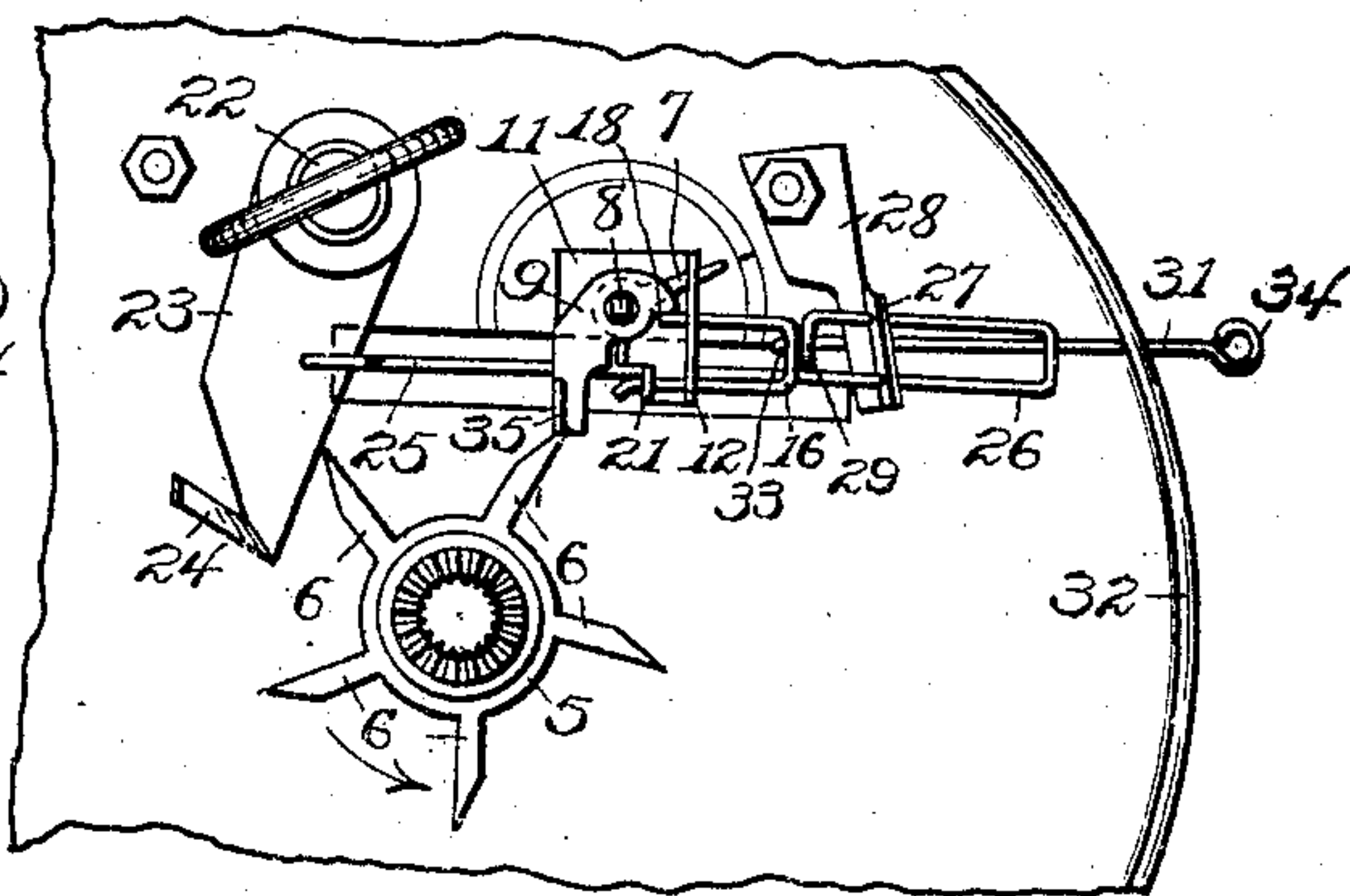
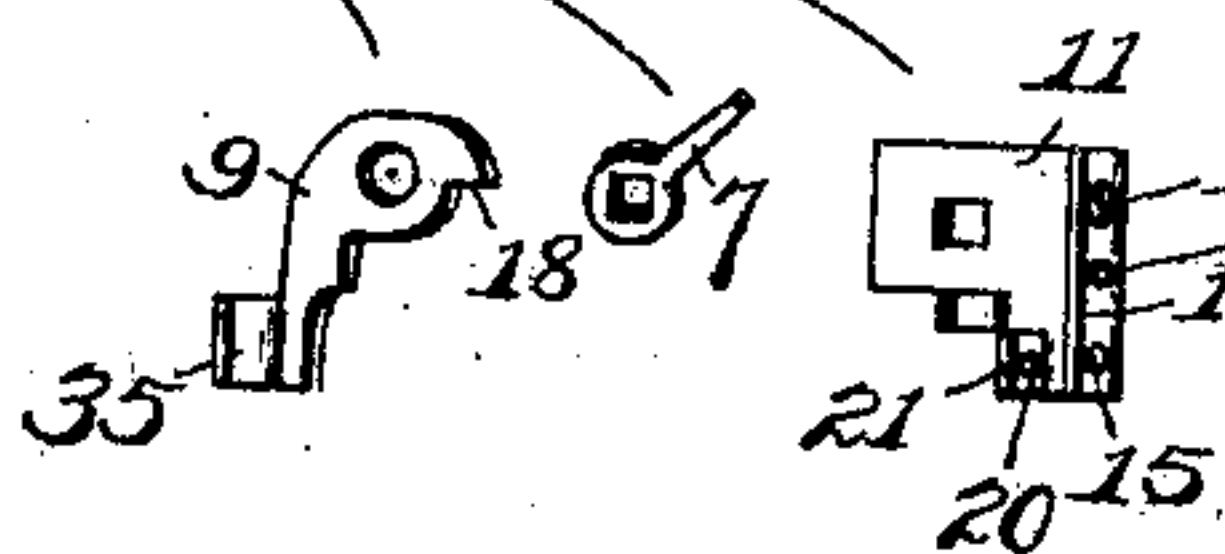


Fig 5



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ALARM.

No. 900,145.

Specification of Letters Patent.

Patented Oct. 6, 1908.

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To all whom it may concern:

Be it known that I, THOMAS E. H. BUCHANAN, a citizen of the United States of America, and resident of Wheeling, county of Ohio, and State of West Virginia, have invented certain new and useful Improvements in Alarms, of which the following is a specification.

My invention relates to new and useful improvements in alarms, and it has for its object to provide mechanism for sounding an alarm at regular intervals.

It frequently happens that certain duties require to be performed at regular intervals, such, for instance, as giving attention to parts of running machinery, and the present invention, is directed to a device which will positively and accurately give notice of the arrival of the periods or times for the performance of such duties.

Another object is to provide a device for sounding a warning signal to a workman indicating the inattention of a co-worker: as for instance, when the latter is working in a position where great danger is incurred. In such case, the person having control of the device, so long as he is in condition to give it attention, prevents it from signaling, and the sounding of the alarm indicates to his co-worker the reverse of such condition.

With these and other objects in view, the invention finally consists in the particular construction, arrangement and combination of parts which will hereinafter be fully described, reference being herein had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is an elevation of the back of an alarm clock embodying my invention; Fig. 2 is a cross section of the same; Figs. 3 and 4 are elevations somewhat similar to that shown in Fig. 1 and respectively showing the positions occupied by the parts immediately after being set for alarming and immediately before alarming; and Fig. 5 is a detail perspective view of some of the parts unassembled.

Referring to said drawings, in which like reference-numerals designate like parts throughout the several views—1 indicates the back of the casing, 2 the alarm bell, and 3 the bell clapper of an ordinary alarm clock.

Rigidly mounted upon the outer end of the arbor 4 of the timekeeping train is a star wheel 5 the arms 6 of which are adapted to individually actuate mechanism associated

with the alarm train to release the latter at predetermined intervals, causing it to ring an alarm. This mechanism comprises in part an indicator 7 fixed upon the alarm shaft 8, a trigger-like lever 9 rotatable upon said shaft 8 in front of said indicator, and a securing head 10, the latter being preferably milled, as shown, to provide grasping means whereby said shaft may be turned for setting. Fixed upon said shaft 8 behind said indicator 7 is a guide-plate 11 having a lateral out-turned flange 12. In said flange is provided an aperture 13 through which the point of said indicator projects, the latter being thus held in fixed relation to said plate. Also provided in said flange 12 are two apertures 14 and 15 in which are slidably held the parallel members of a substantially U-shaped wire dog 16, the point of the upper member of which is adapted to normally stand in interlocking engagement with a shoulder 18 provided upon said lever 9, and the lower member of which is extended forward to and through an aperture 20 provided in an outwardly projecting lip 21 carried by said plate 11, said aperture 20 registering with said aperture 15, and said lower member serving as a guide-member for said upper member.

Fixed upon the alarm-spring winding-shaft 22 is a depending lever 23, preferably of sheet metal, having an outwardly and forwardly extending arm 24 which stands inclined laterally and which normally occupies a position wherein it will be contacted and moved forward by the several arms of the star wheel 5 as the latter rotates with the timekeeping train. Attached to said lever 23 is one end of a wire rod 25 which extends rearwardly and is bent to form a loop 26 the parallel members of which are slidable in apertures provided therefor in the out-turned flange 27 of a plate 28 which is rigidly mounted at a suitable point in the rear of the mechanism hereinbefore described as carried by the alarm shaft 8, said plate 28 serving as a support and guide for said rod 25. The terminal of the loop 26 stands at substantially a right angle to the members thereof and constitutes an abutment 29 against which the rear end of the dog 16 normally rests.

In setting the device for operation, the indicator 7 is moved by turning the head 10 on the alarm shaft to a position in alignment with the indicating mark 30, all the

parts on said shaft turning therewith, and the dog 16 is drawn rearward from the position which it occupied subsequent to the previous alarm to its normal position against the abutment 29, this action drawing the lever 23 back, when all the parts occupy the positions shown in Fig. 3. A pin 31, which is slidable in an aperture provided in the flange 32 of the clock casing and which has an out-turned hook-like terminal 33 in engagement with the loop of the dog 16, serves as the medium by which said dog and the correlated parts of the device are drawn back. Said pin is provided with a loop 34 on its outer end which facilitates the securing of a hold thereon.

The device being set for operation, as above described, when the timekeeping mechanism carries the star wheel forward with one of its arms 6 in engagement with the arm 24 of the lever 23, the latter is thereby gradually moved forward, drawing therewith the rod 25. As the rod moves forward, it carries the dog 16 forward therewith until the point of its upper member stands in front of or in engagement with the shoulder 18 of the lever 9. At this point the arm 6 which moved the lever 23 forward slips by the arm 24 of said lever, and all the parts occupy substantially the positions shown in Fig. 4; that is, the device is in condition for sounding an alarm or signal upon the tripping of the trigger-like lever 9. This tripping of said lever is effected by the moving forward of said lever by an arm of said star wheel, said arm engaging an out-turned lip 35 carried by said lever 9.

As is obvious, the engagement of the dog 16 with the shoulder 18 of the lever 9 operates to hold said lever in fixed relation to the plate 11 which is fixed upon the alarm shaft 8; consequently, the forward movement of said lever 9, effected by the rotation of said star wheel in the manner described, produces the turning of said alarm shaft past the alarm point.

It will be noted that the star wheel herein shown has five arms, and since said star wheel is carried by the timekeeping arbor and consequently makes a complete revolution every hour, the alarm mechanism herein described will operate every twelve minutes. To vary the interval between alarms, as is obvious, requires only that the number of arms of the star wheel be increased or diminished.

When it is desired that an alarm be not

given after setting the mechanism for operation, the pin 31 may be drawn outward just subsequent to the passage of the arm 6 of the star wheel by the lever 23, thus withdrawing the dog 16 from engagement with the lever 9. The next arm of the star wheel will then move the lever 9 forward without rotating the alarm shaft; and, having passed from beneath said lever, the latter will drop back to its normal position.

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

1. In an intermittent alarm, a clock having an alarm-spring winding-shaft and an alarm shaft, a lever pivotally carried by the alarm-spring winding-shaft, a star-wheel carried by the arbor of the timekeeping train and adapted to move said lever forward, a guide-plate fixed upon the alarm shaft, a trigger pivotally mounted on said alarm shaft, and means for normally maintaining said trigger and plate in fixed relation, said means being controlled by said lever, and said trigger being adapted to be tripped with relation to said plate by said star-wheel.

2. In an alarm, a clock having an alarm-spring winding-shaft and an alarm shaft, a lever pivotally carried by the alarm-spring winding-shaft, a star-wheel carried by the arbor of the timekeeping train and adapted to move said lever forward, a guide-plate fixed upon the alarm shaft, a trigger pivotally mounted on said alarm shaft, and a dog having connection with said lever for normally maintaining said trigger and plate in fixed relation, said trigger being adapted to be tripped with relation to said plate by said star-wheel.

3. In an alarm, a clock having an alarm-spring winding-shaft and an alarm shaft, a lever pivotally carried by the alarm-spring winding-shaft, said lever having an outwardly and forwardly extending arm, a star-wheel carried by the arbor of the timekeeping train and adapted to contact with said arm for moving said lever forward, and a mechanism intermediate said lever and said alarm shaft whereby the release of the latter is effected at predetermined intervals.

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

THOMAS E. H. BUCHANAN.

Witnesses:

H. E. DUNLAP,
L. E. RIGGS.