

908,503.

2 SHEETS--SHEET 1.

*Fig. 1.*

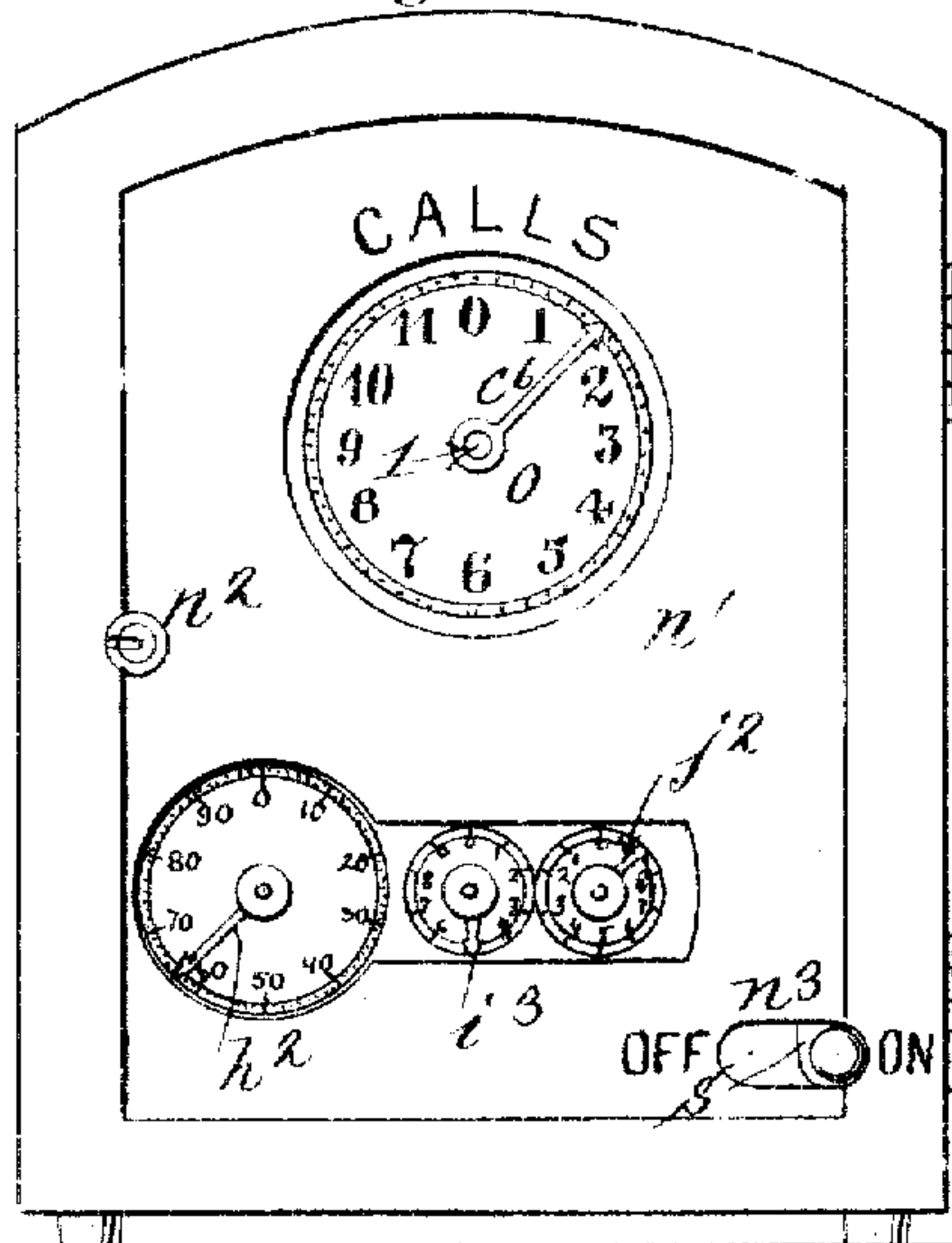
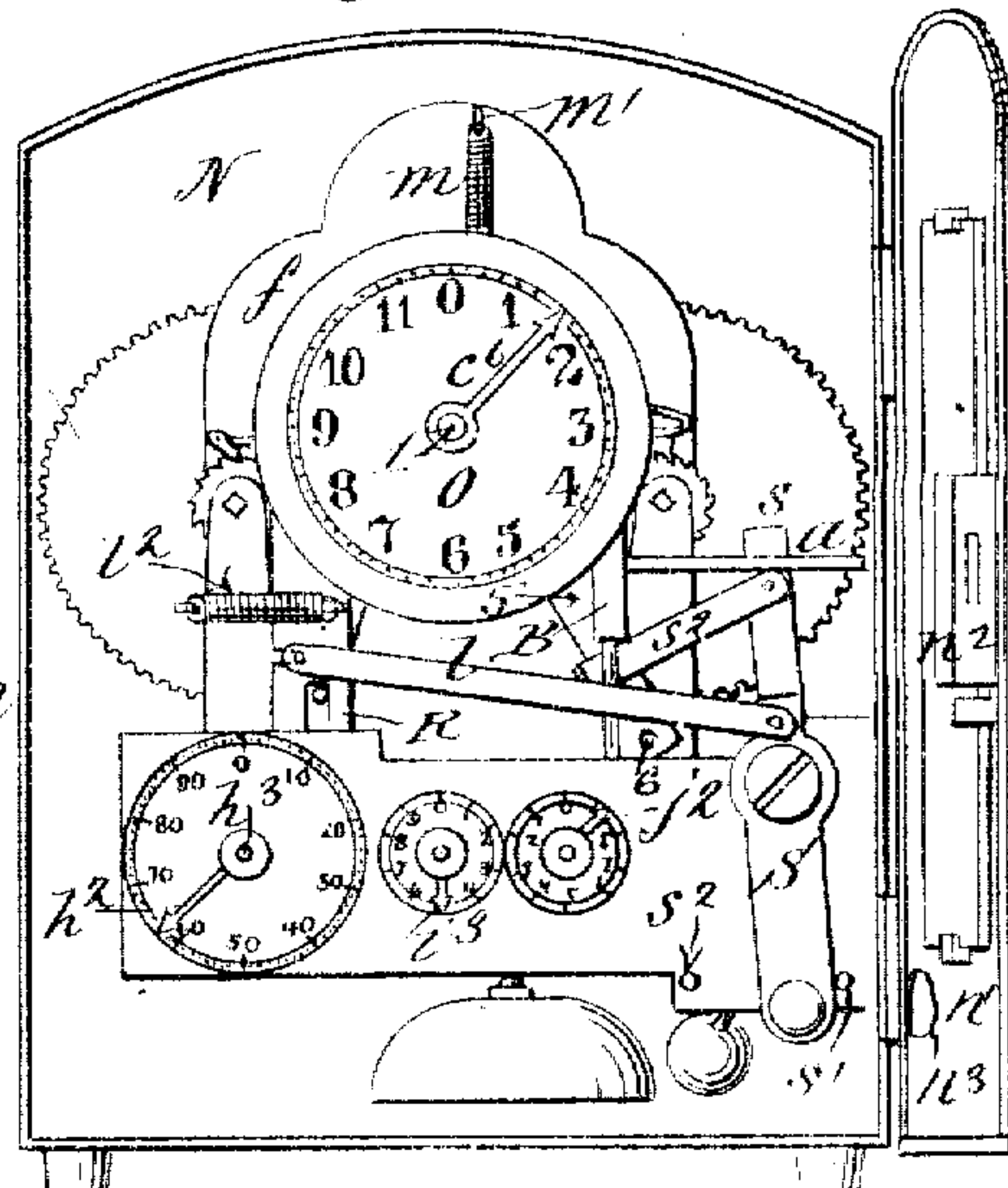
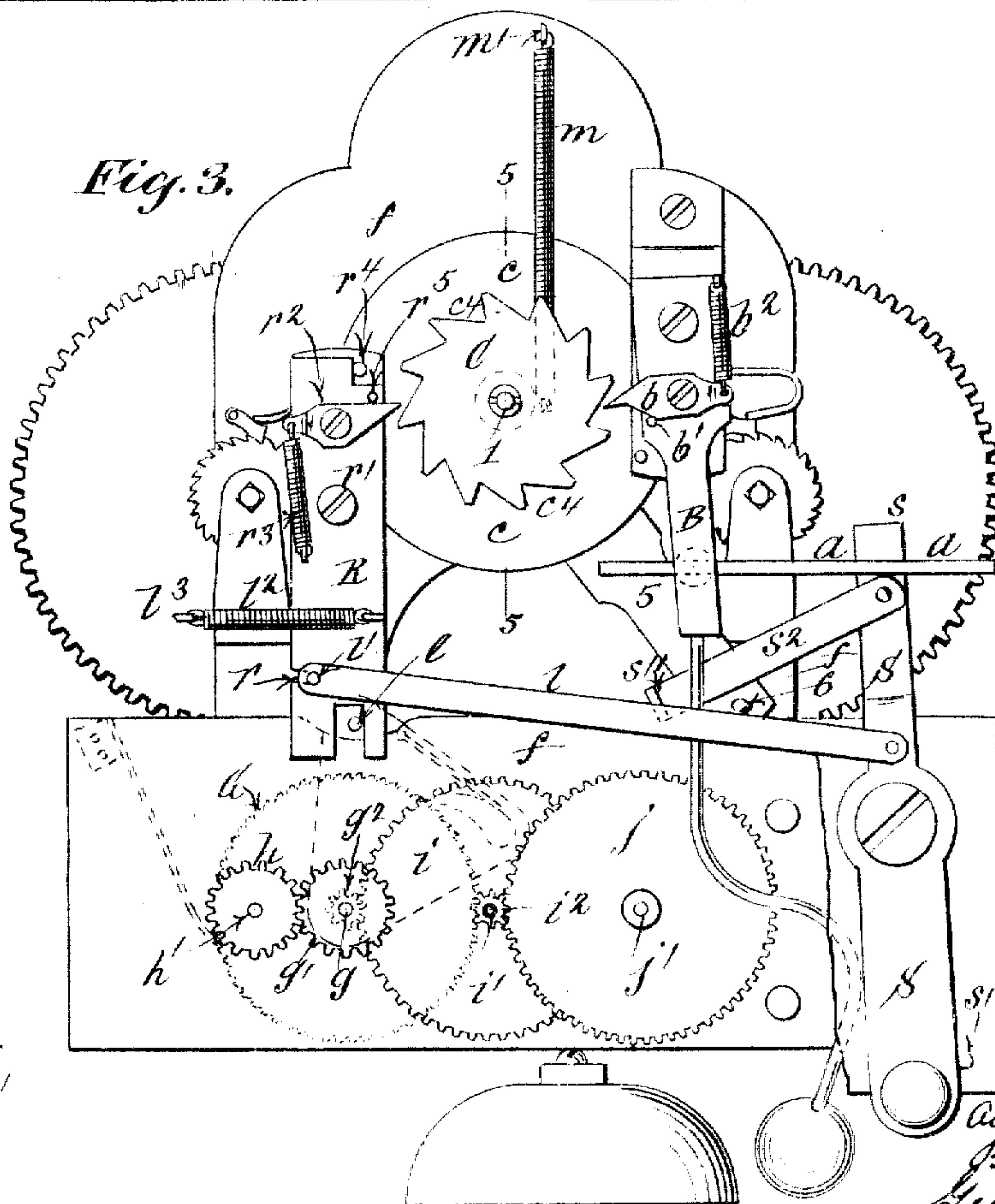


Fig. 2.



*Fig. 3.*



Inventory:

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TIME LIMIT ANNUNCIATOR AND REGISTER.  
APPLICATION FILED MAR. 30, 1908.

908,503.

Patented Jan. 5, 1909

SHEETS—SHEET 2.

Fig. 5.

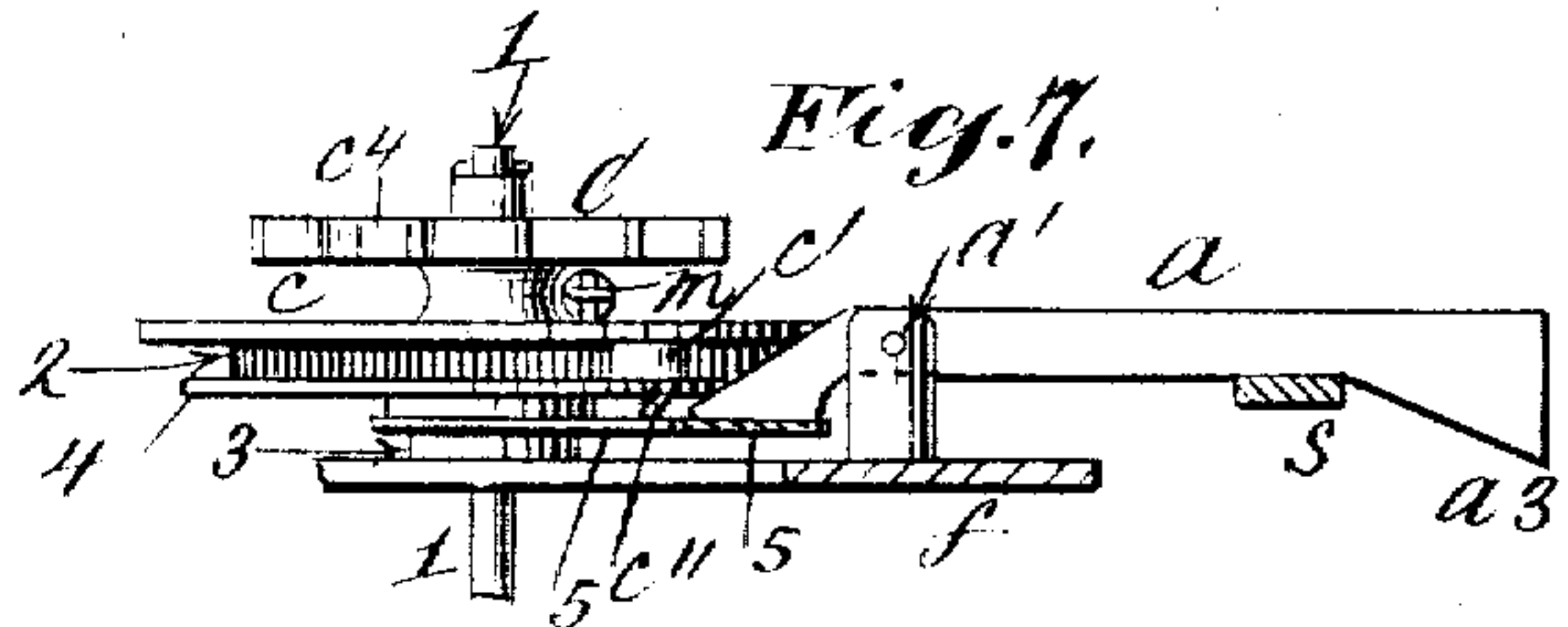
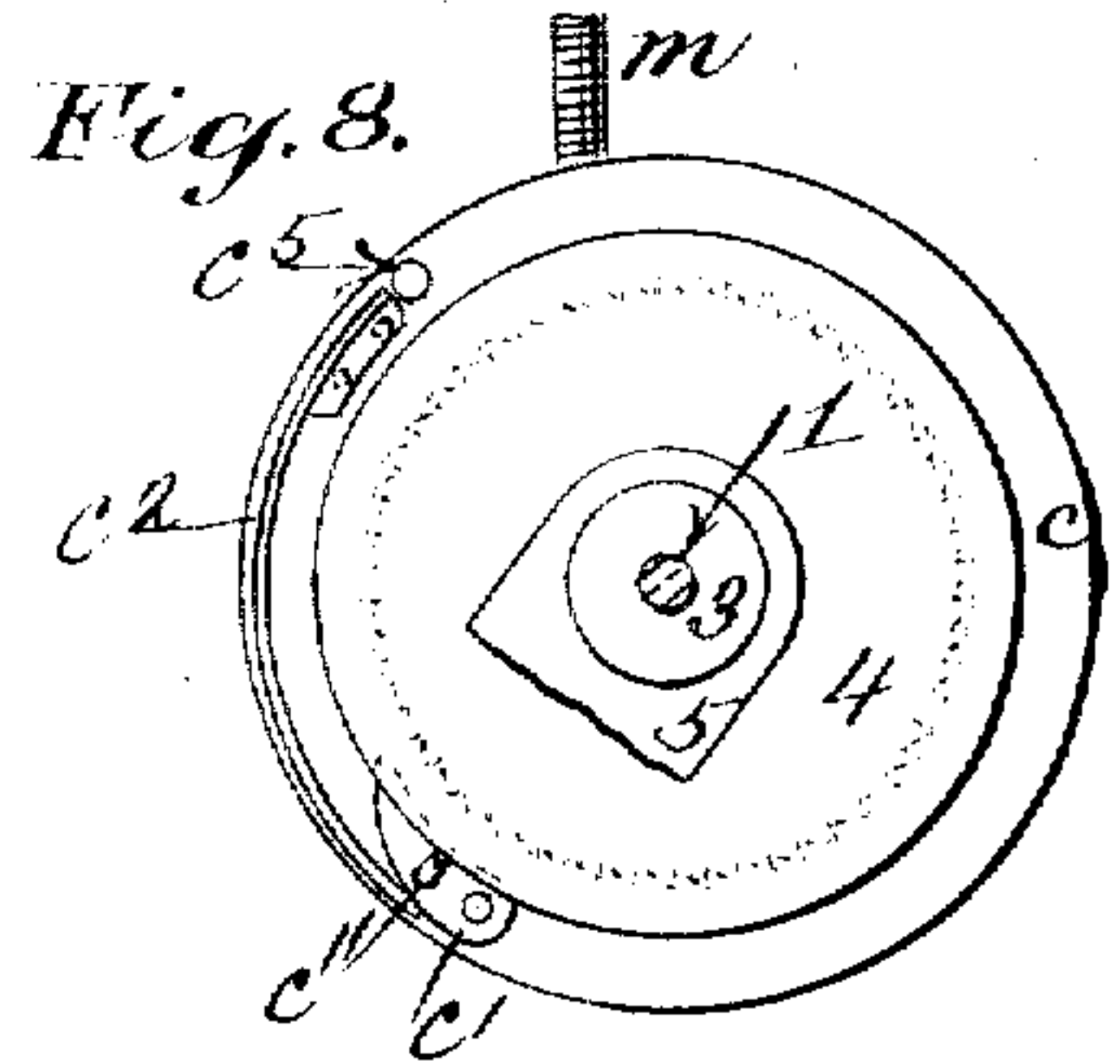
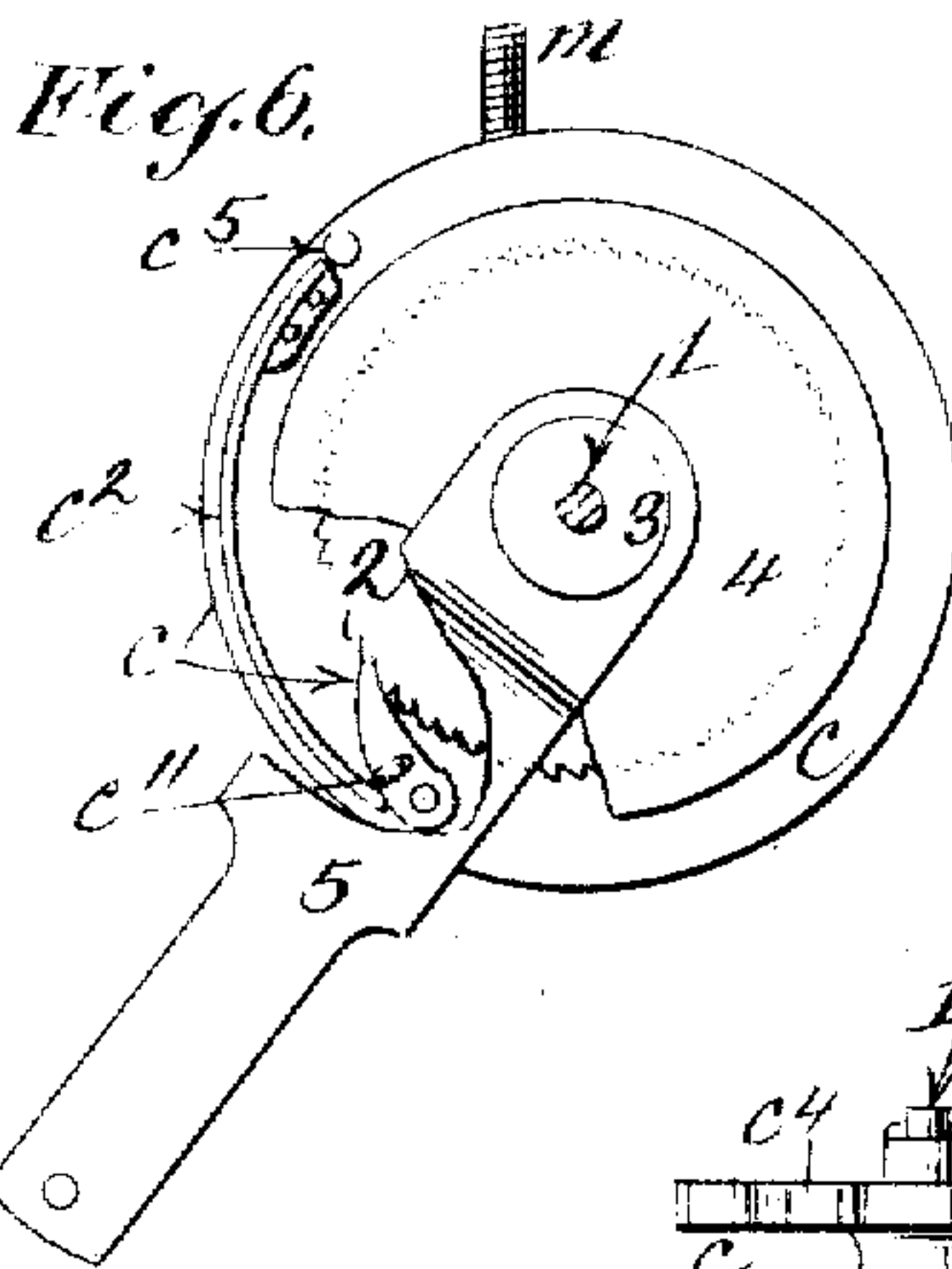
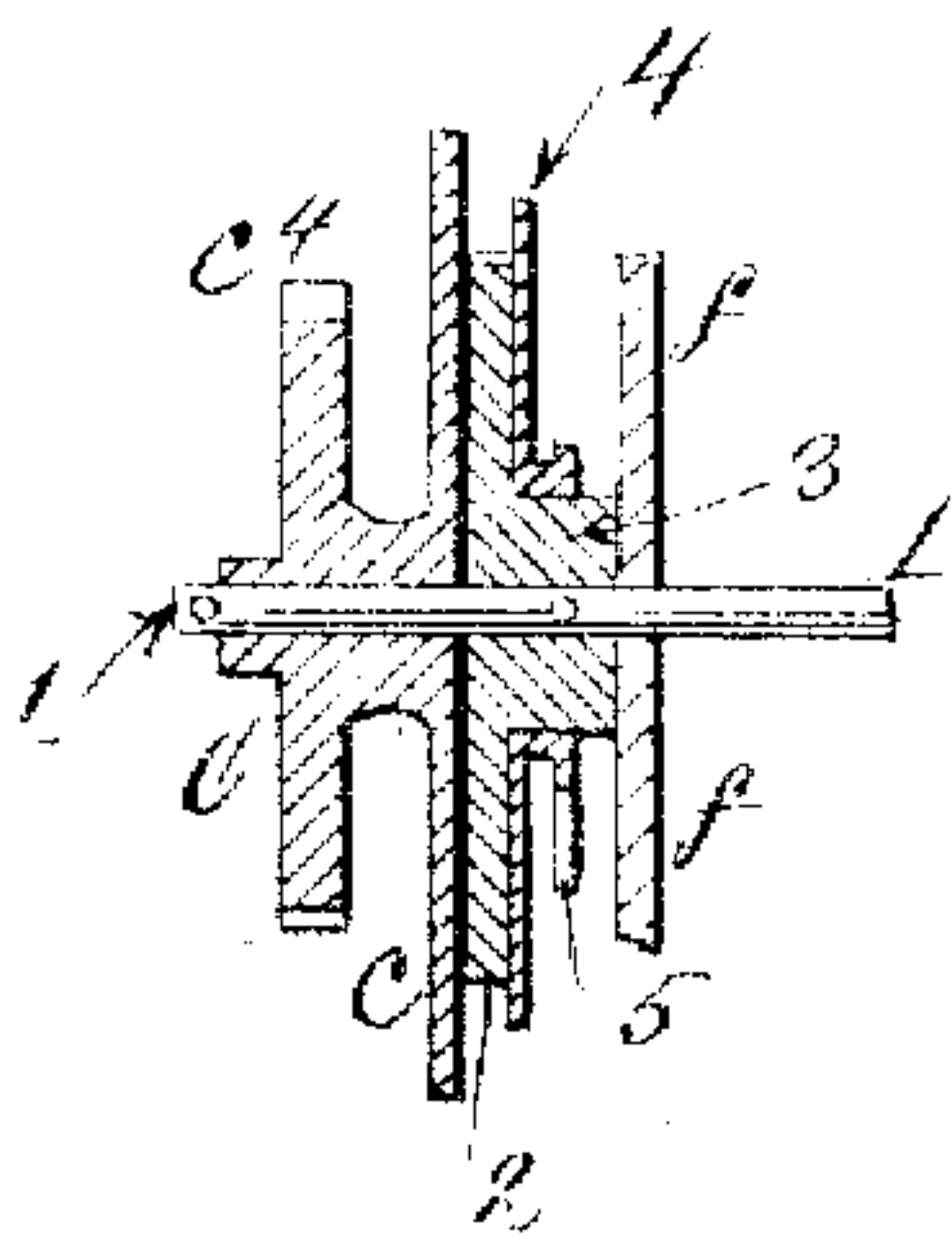
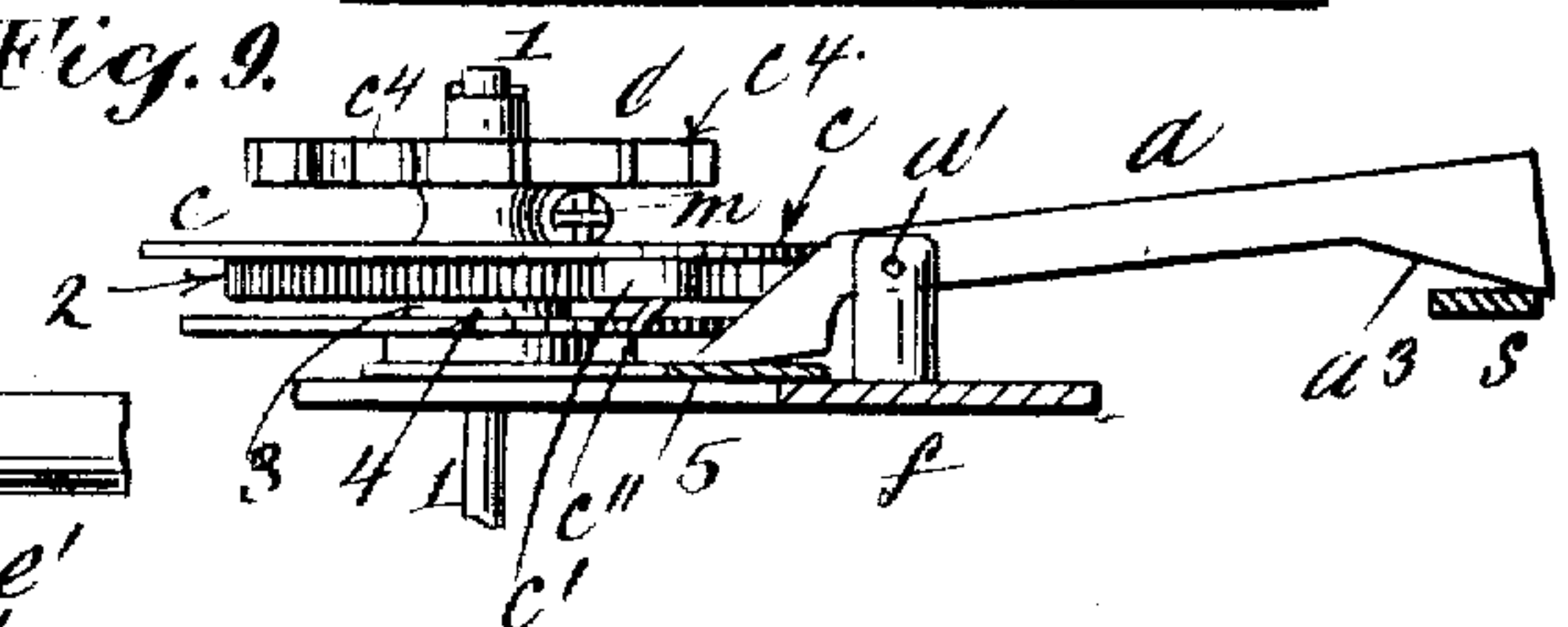
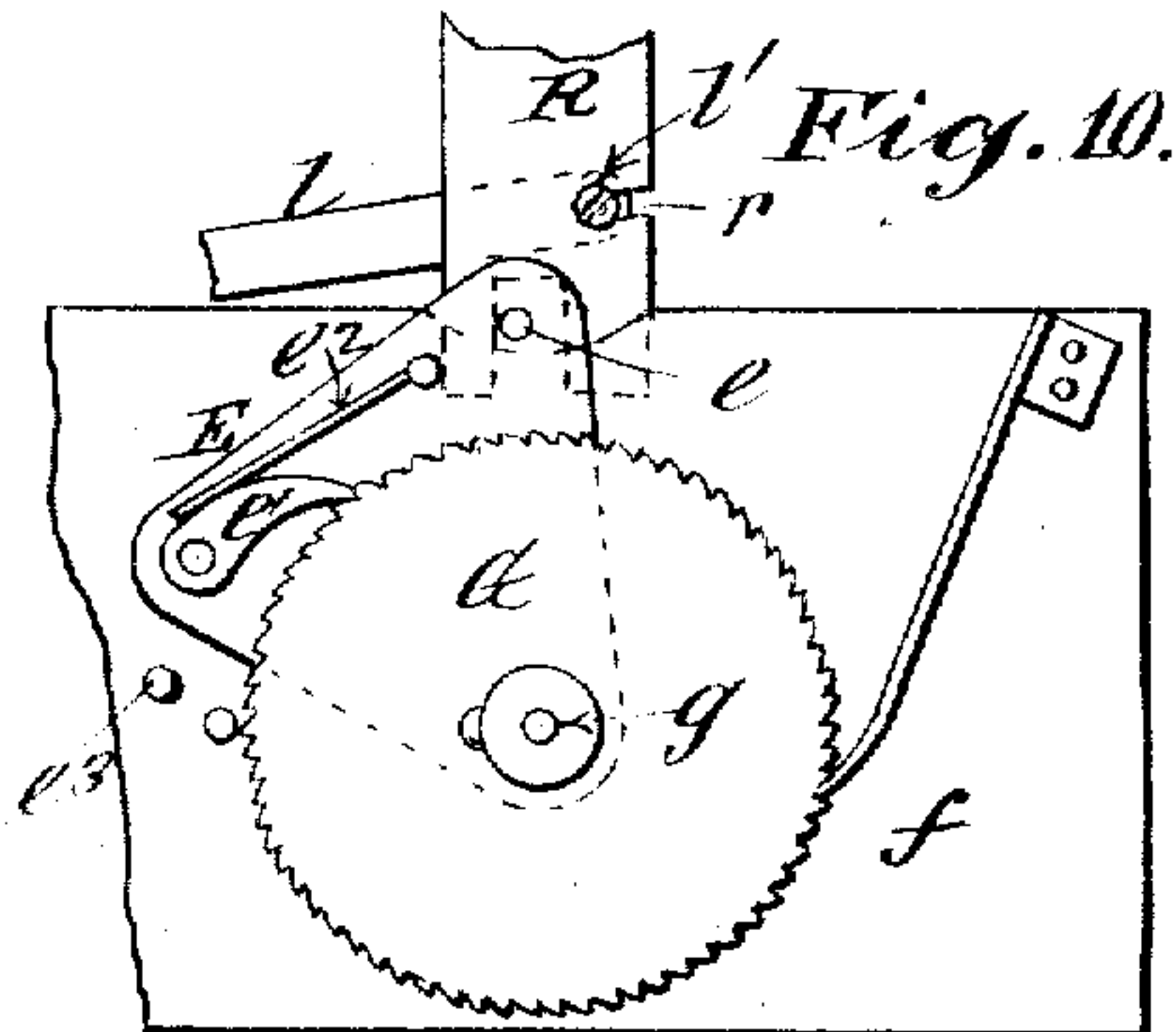
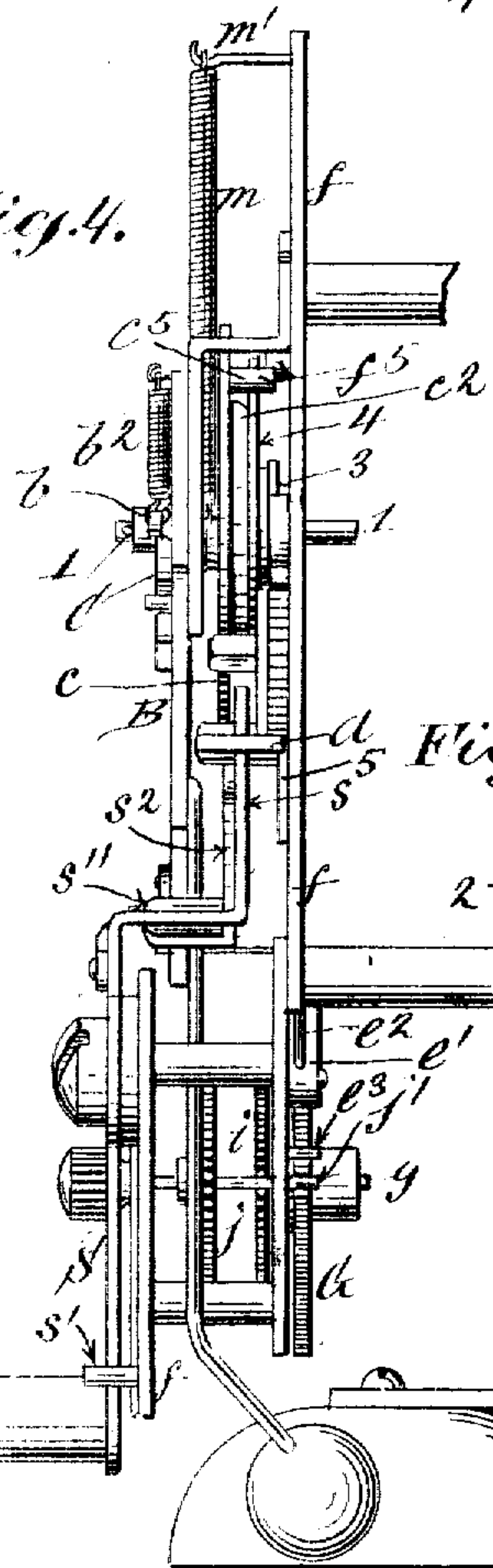


Fig. 4.



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# UNITED STATES PATENT OFFICE.

ADOLPH SANDERS, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO JOSEPH G. ROSEN, OF NEW YORK, N. Y.

## TIME-LIMIT ANNUNCIATOR AND REGISTER.

No. 908,503.

Specification of Letters Patent.

Patented Jan. 5, 1909.

Application filed March 30, 1908. Serial No. 424,068.

*To all whom it may concern:*

Be it known that I, ADOLPH SANDERS, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Time-Limit Annunciators and Registers, of which the following is a specification.

The object of my invention is to afford a simple and effective device by means of which the number and length of telephone calls may be announced and registered, and which may be used for various similar purposes, as for the keeping of games played upon a time basis.

The invention consists essentially in the combination with a clock movement, of the special construction and arrangement of registering and announcing mechanism hereinafter described and claimed specifically.

In the accompanying drawings, Figure 1, is a front elevation of my annunciator closed; Fig. 2, is a front elevation with the door opened; Fig. 3, is a front elevation full size of the operative parts, the dials and pointers being omitted; Fig. 4, is a side elevation of announcing and registering mechanism shown in Fig. 3, only parts of the clock movement and frame being included; Fig. 5, is a section of the cam wheel and adjoining parts taken upon plane of line 5-5 Fig. 3; Fig. 6, is a rear view partly broken away of the clutch mechanism for engaging the cam wheel of the main spindle; Fig. 7, is a sectional elevation of said clutch mechanism and adjacent parts, taken from below and looking upward; Fig. 8, is a view similar to Fig. 6, and Fig. 9, a view similar to Fig. 7, showing the position of the parts when the cam wheel is disconnected from the main spindle; Fig. 10, is a rear elevation showing the means for operating the indicating and registering mechanism.

In making my annunciator I employ an ordinary clock movement with the exception of the hour hand and connections. In the drawings parts only of a double spring long time movement are shown sufficient to illustrate the embodiment of my invention in practical form, 1, being the usual main or minute hand spindle on which in the present case is rigidly secured the ratchet wheel 2, on the hub 3 of which is a slidable disk 4 mounted on the inner end of a spring plate 5, the outer end of which is secured rigidly at 6

to the frame *f*. On the main spindle 1 in front of the ratchet wheel 2 is loosely mounted a cam wheel C having a hub on which is a disk *c*, to the rear side of which a pawl *c'*, is pivotally attached, said disk *c*, also carrying a spring *c''*, which tends constantly to hold the pawl *c'*, in engagement with the teeth of the ratchet wheel 2 as shown in Figs. 6 and 7. An inclined pin or shoulder *c'''*, on the pawl *c'*, engages with the edge of the disk 4, so that when the disk 4 is forced backward against the resistance of the spring plate 5, the pawl *c'*, will be raised from engagement with the teeth of the ratchet wheel 2 against the resistance of the spring *c''*, as shown in Figs. 8 and 9, thereby disconnecting the cam wheel C from the spindle 1. The spring plate 5 is depressed by means of a rocking arm *a*, pivotally mounted on a stud *a'*, attached to the frame *f*, the inner end of the rocker arm *a*, resting upon the face of said spring plate and its outer end being formed with an inclined edge *a''*, for engagement with the upper end *s*, of the switch lever S. Thus when the switch lever S is turned from right to left its upper end will act against the inclined edge *a''*, to depress the spring 5, and disconnect the cam wheel C from the clock work as above described, whereas when said switch lever S is turned from left to right its end will be withdrawn from the inclined edge *a''*, thereby allowing the spring 5 to advance the disk 4, and the spring *c''* to re-engage the pawl *c'*, with the teeth of the ratchet wheel 2, thereby recoupling the cam wheel C with the clock movement. Stops *e'*, *s'*, limit the movement of the switch lever in either direction; and its two positions are indicated on the face of the door of the casing by the words "Off" and "On", the first indicating that the annunciator mechanism is disconnected from the clock movement which is then running free and the latter that the annunciator mechanism is connected with the clock movement and working in conjunction therewith.

The upper arm of the switch lever S is pivotally connected by means of a link *l*, with what may be designated as the registering lever R by which the train of registering wheels are actuated. A pin *l'*, upon the link *l*, rests in a slot *r*, in the registering lever R, the inner edge of the slot being held normally against said pin *l'*, by means of a retractile spring *l''*, attached to one end of the register-



ing lever R, and at the other to a post  $l^3$ , on the frame  $f$ . This arrangement maintains the engagement of the link  $l$ , with the registering lever R while permitting the latter to rock independently on its fulcrum  $r'$ , when actuated by the cam wheel C.

The cam wheel C, like the minute hand for which it is substituted, travels, when connected with the clock movement as hereinbefore described, at the rate of one revolution an hour, and hence preferably is divided into twelve equi-distant peripheral cams  $c^4$ , each representing a period of five minutes, which is the usual time measurement for telephone calls &c. It may however obviously be sub-divided into any desired number of peripheral cams  $c^4$ , corresponding to other periods or divisions of time and I do not restrict myself in this respect.

When the switch lever S is swung to the left into the "Off" position, the registering lever R is rocked by the link  $l$ , away from the cam wheel C, so that the cams  $c^4$ , thereon cannot act upon the pawl  $r^2$ , mounted upon the upper portion of the lever R. When the switch lever S is turned to the right into the "On" position the spring  $l^2$ , holds the registering lever R against the stop  $r^4$ , in which position the end of the pawl  $r^2$ , protrudes into the path of the cams  $c^4$ , and said pawl being held by a spring  $r^3$ , against a stop  $r^5$ , the cams  $c^4$ , as they pass push the end of the pawl away from them, thereby rocking the registering lever on its fulcrum  $r'$ , against the resistance of the spring  $l^2$ . As a result during the retractile movement of the registering lever effected by the spring  $l^2$ , the bifurcated lower end of the registering lever R, acting on the pin  $e$ , on the pawl plate E, causes the pawl  $e'$ , to advance the ratchet wheel G, on the arbor  $g$ , on which the pinions  $g'$  and  $g^2$ , are mounted. The pinion  $g'$  meshes with a gear  $h$ , on the arbor  $h'$ , carrying a pointer  $h^2$ , which at each thrust of the pawl  $e'$ , indicates one point on the dial  $h^3$ . The pinion  $g^2$ , engages with a gear  $i$ , on the arbor  $i'$ , carrying a pinion  $i^2$ , and a pointer  $i^3$  which latter indicates the number of revolutions made by the arbor  $h'$ , while the pinion  $i^2$ , engages with a wheel  $j$ , on the arbor  $j'$ , carrying a pointer  $j^3$ , which indicates on the dial the number of revolutions of the arbor  $i'$ . Obviously any desired train of registering gears and dials may be used. The pawl plate E is pivotally supported on the arbor  $g$ , and carries a spring  $e^2$ , which insures the engagement of the pawl  $e'$ , with the teeth of the ratchet wheel G.  $e^3$ , is a stop for supporting the plate E in its retractile position. The cams  $c^4$ , on the wheel C also actuate a bell lever B, when the pawl  $b$ , thereon protrudes into the path. This pawl is held normally against a stop  $b'$ , by a spring  $b^2$ ; and the bell lever B is retract-

ed to carry the pawl  $b$ , beyond the path of

the cams  $c^4$ , by a shoulder  $s''$ , on an extension  $s^2$ , of the switch lever S. Thus the swinging of the latter from right to left not only depresses the spring plate  $5'$  and releases the cam wheel C from the clock movement, but it simultaneously retracts the levers R and B.

The springs  $r^3$  and  $b^2$ , allow the pawls  $r^2$  and  $b$ , to yield before the retractile revolution of the cam wheel C, which is effected by means of a spring  $m$ , attached at one end to the hub of the cam wheel C and at the other to a stud  $m'$ , on the frame  $f$ . The lower end of this spring winds around the hub of said wheel as it is advanced by the clock movement, and directly the wheel is released from the latter it returns the wheel to its first position, or position of rest in which the stop  $c^5$ , on the back of the disk  $c$ , rests against a stop  $f^5$ , on the frame as shown in Fig. 4.

The clock movement is mounted upon a back plate N, attached to a suitable casing  $n$ , provided with a hinged front door  $n'$ , having a lock  $n^2$ . Openings in the door expose the several dials to view, including the dial O, for the pointer  $c^6$ , on the hub of the cam wheel C. The handle of the switch lever S protrudes through a slot  $n^3$ , in the door.

Normally when the device is not in actual use the switch lever S is turned to the left or "Off" position, in which the clock movement is disconnected from the announcing and registering mechanism. The movement of the switch lever to the right or "On" position not only connects the cam wheel with the clock movement, but also registers one call on the dial. The actual time of the whole call will be indicated in minutes by the pointer  $c^6$ , on the dial O. At the expiration of each five minutes the cams  $c^4$ , acting through the registering lever R and bell lever B, will register and announce the expiration of such term. At the end of the call the switch lever is turned to the left restoring the parts to their first or normal positions, with the pointer  $c^6$ , at O on the dial O.

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

1. In a device of the character designated, the combination with a clock movement, of a cam wheel loosely mounted on the main spindle thereof, clutch mechanism for connecting said cam wheel with said main spindle, a registering lever actuated by said cam wheel, a pawl and ratchet actuated by said registering lever, indicating and registering mechanism actuated by said pawl and ratchet, and a switch lever and connections arranged to simultaneously connect or disconnect the cam wheel with the said main spindle, and to move the registering lever into or out of position with relation to the said cam wheel, for the purpose described.



2. In a device of the character designated, the combination with a clock movement, of a cam wheel loosely mounted upon the main spindle thereof, clutch mechanism for connecting said cam wheel with said main spindle, a registering lever actuated by said cam wheel, a pawl and ratchet actuated by said registering lever, indicating and registering mechanism actuated by said pawl and ratchet, a bell lever actuated by said cam lever and a switch lever and connections arranged to simultaneously connect or disconnect said cam wheel with the said clock spindle to move the said registering lever and bell lever into or out of position with relation to said cam wheel, for the purpose described.

3. In a device of the character designated, the combination with a clock movement, of a cam wheel loosely mounted upon the main spindle thereof, clutch mechanism connecting said cam wheel with said main spindle, a registering lever actuated by said cam wheel, a pawl and ratchet actuated by said registering lever, indicating and registering mechanism actuated by said pawl and ratchet, a switch lever and connections arranged to simultaneously connect or disconnect the cam wheel with the said clock spindle and to

move the registering lever into or out of position with relation to said cam wheel, and a pointer on the hub of the cam wheel, and a minute dial arranged in conjunction with said pointer, for the purpose described.

4. In a device of the character designated, the combination with a clock movement, of a cam wheel loosely mounted upon the main spindle thereof, clutch mechanism connecting said cam wheel with said main spindle, means for returning said cam wheel to its normal position when released from said main spindle, and stops arranged to sustain said cam wheel in such normal position, a registering lever actuated by said cam wheel, a pawl and ratchet actuated by said registering lever, indicating and registering mechanism actuated by said pawl and ratchet, and a switch lever and connections arranged to simultaneously connect or disconnect the cam wheel with the said power spindle and to move the registering lever into or out of position with relation to the said cam wheel, for the purpose described.

ADOLPH SANDERS.

Witnesses:

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GEO. WM. MIATT.