

(No Model.)

J. GOODFELLOW.

3 Sheets—Sheet 1.

FARE REGISTER.

No. 283,706.

Patented Aug. 21, 1883.

FIG. 1.

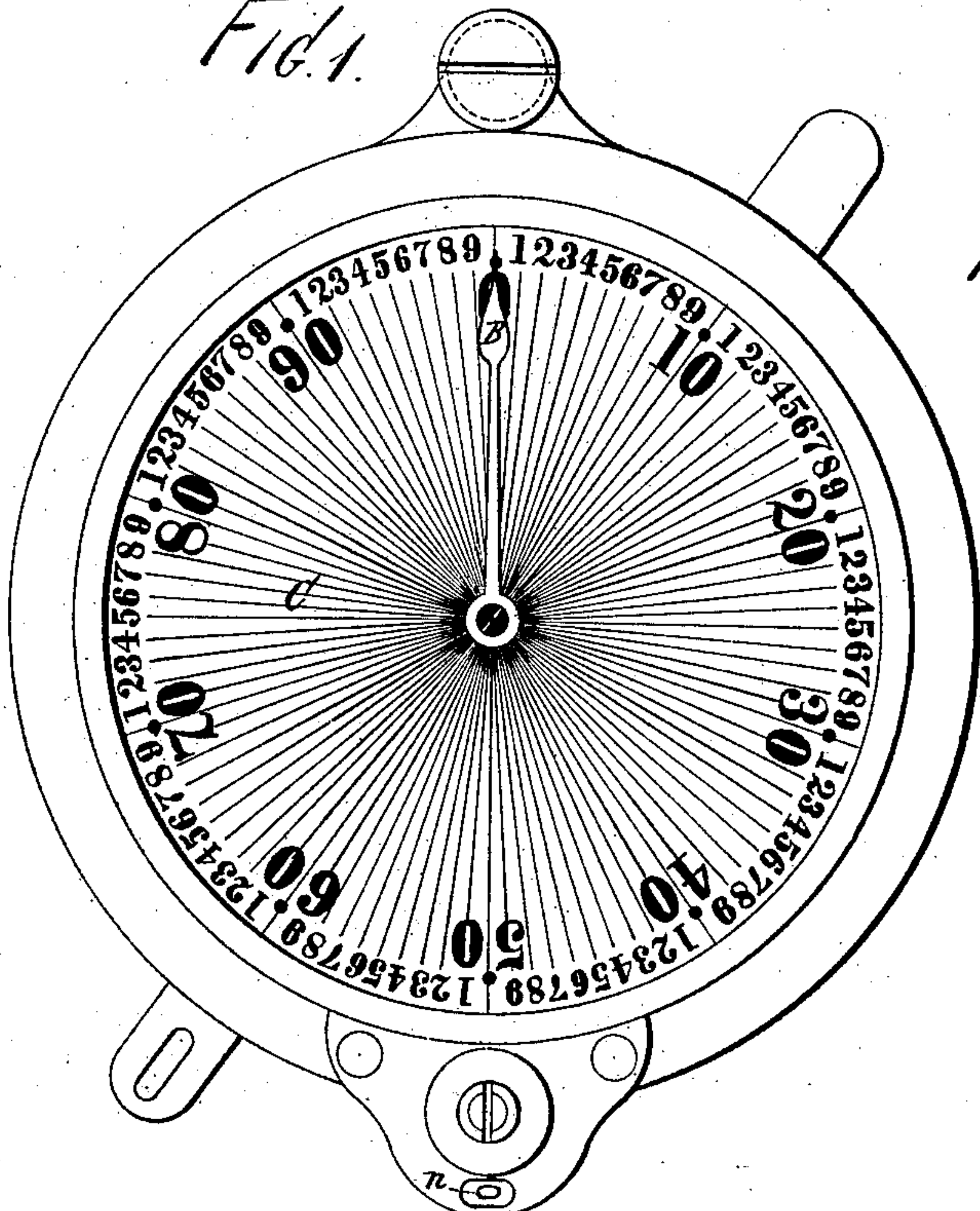


FIG. 3.

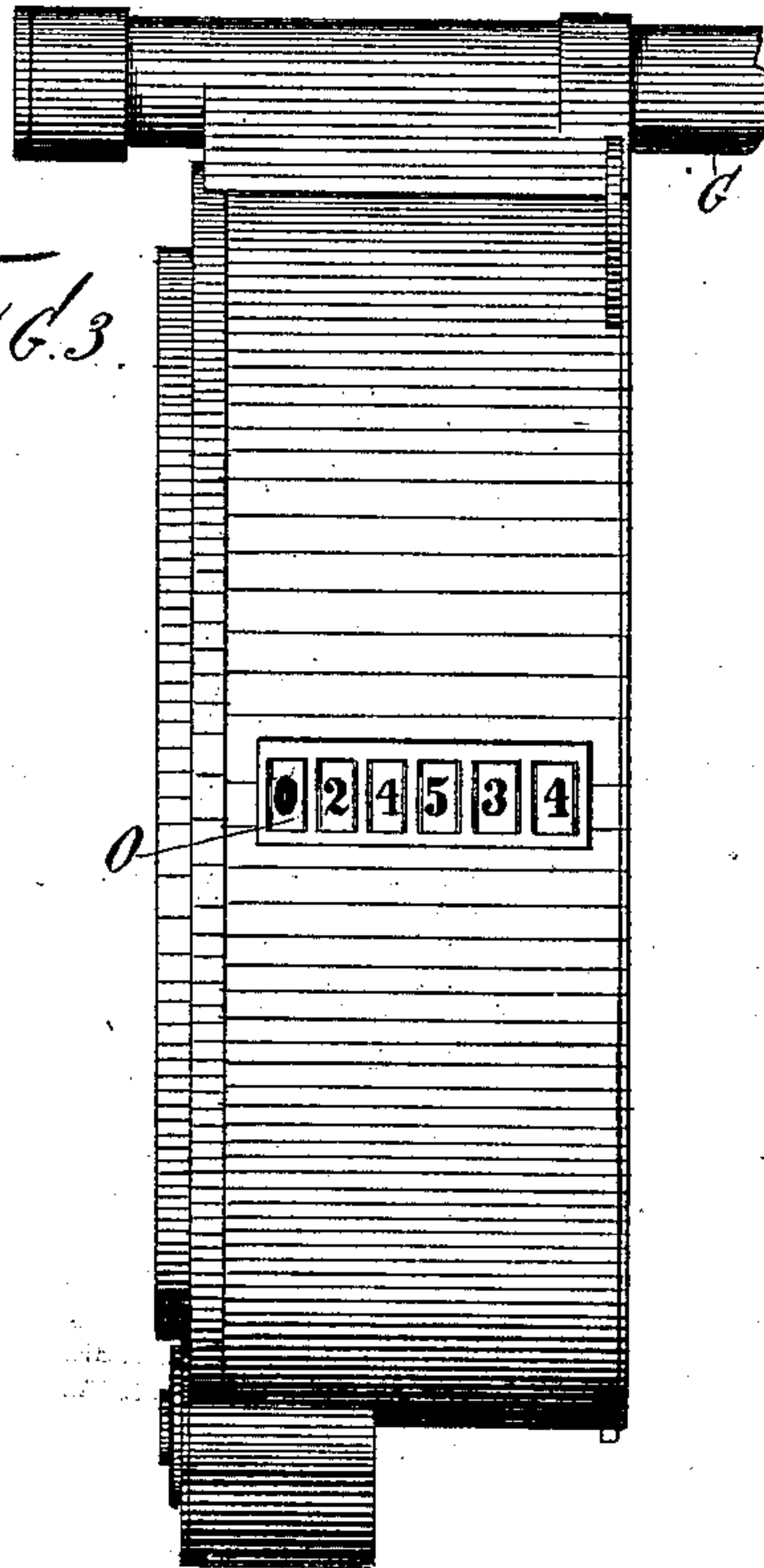


FIG. 2.

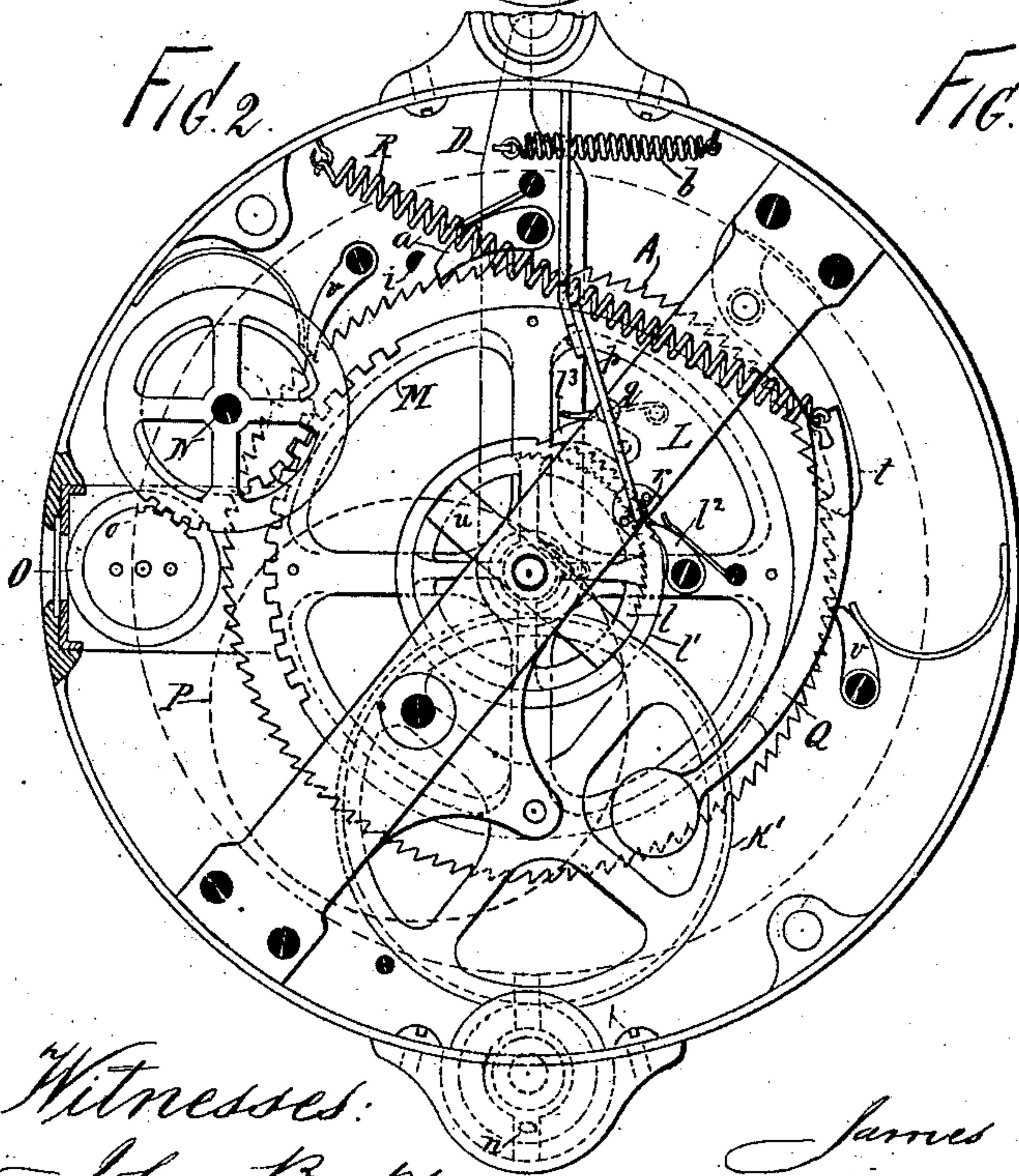
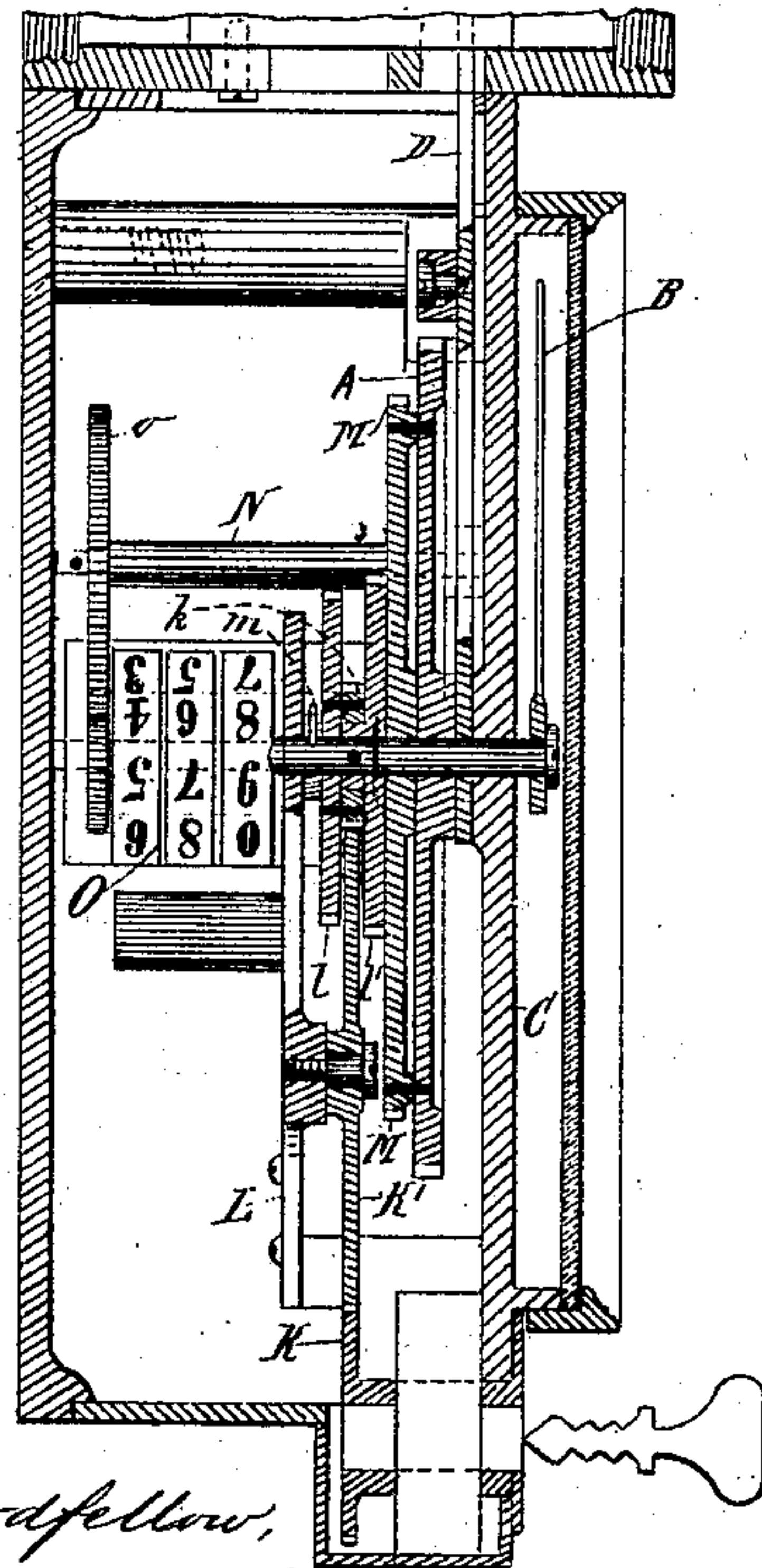


FIG. 4.



Witnesses:  
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Inventor:  
By North Ogden Attorney.

(No Model.)

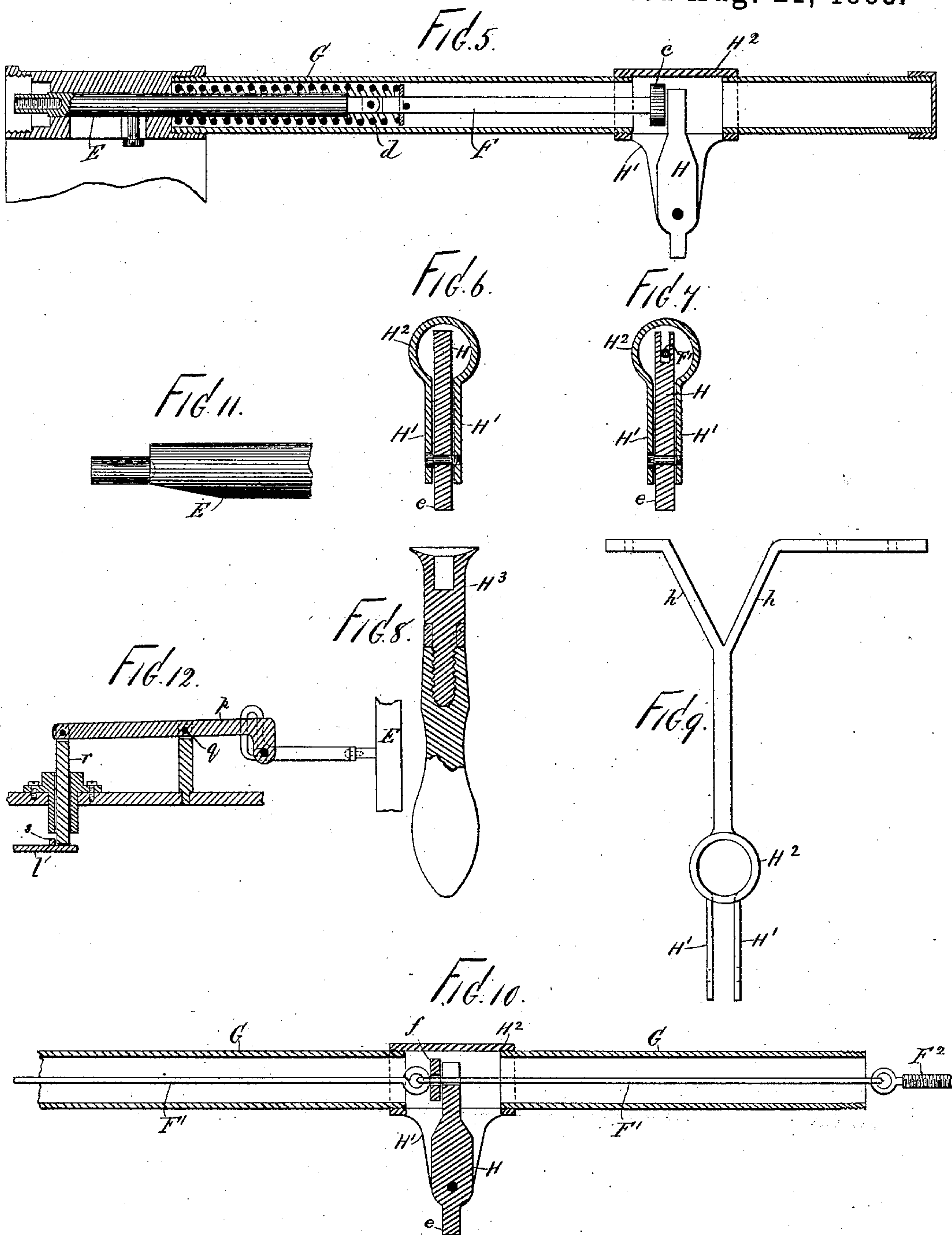
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3 Sheets—Sheet 2.

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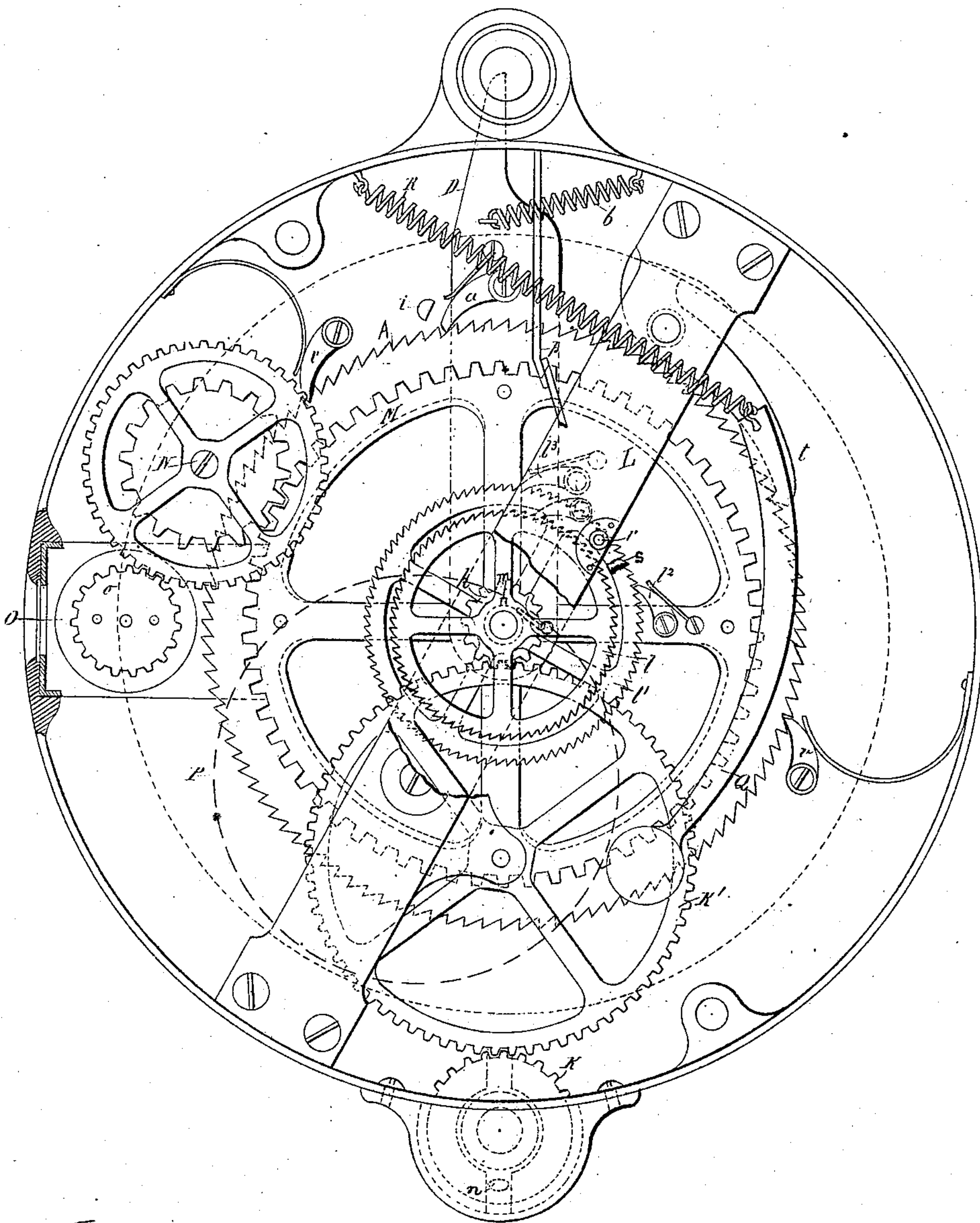
3 Sheets—Sheet 3.

FARE REGISTER.

No. 283,706.

Patented Aug. 21, 1883.

Fig. 13.



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# UNITED STATES PATENT OFFICE.

JAMES GOODFELLOW, OF NEW YORK, N. Y., ASSIGNOR TO JOHN E. MULFORD, OF SAME PLACE.

## FARE-REGISTER.

SPECIFICATION forming part of Letters Patent No. 283,706, dated August 21, 1883.

Application filed June 11, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES GOODFELLOW, of New York city, county of New York, and State of New York, have invented certain new and useful Improvements in Fare-Registers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention has relation to that class of devices now commonly known as "passenger-registers" or "fare-registers," employed for indicating the number of fares paid or passengers entering or passing, as in a street-car or other place, and usually, also, for any other analogous purpose.

Among the principal objects of my invention are the provision of simple and efficient means for operating the register and preventing unauthorized interference therewith, for sustaining the register-operating medium and the fulcrum for the lever by which the said medium is moved, to provide a lock geared with the register in such manner that by turning the key half-way around the index or pointer will be turned a complete revolution and an indicator brought to view, to arrange a counter in connection with the gearing of the index, so that the driving-wheel will operate the counter in a simple and positive manner, and to provide means for automatically arresting the key when turned, so as to bring the index to the zero-point. To accomplish all of this my improvements involve certain novel and useful arrangements or combinations of parts, peculiarities of construction, and principles of operation, all of which will be herein first fully described, and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan or face view of the improved instrument, showing the dial-plate; and Fig. 2 is a plan of the interior, showing the arrangement of the operating mechanism therein. Fig. 3 is a side elevation, and Fig. 4 an axial section and partial elevation. Fig. 5 is a sectional elevation, showing the arrangement employed for operating the register from the front of the car, as where the index is only to be moved from one station. Fig. 6 is a cross-section through the le-

ver shown in Fig. 5. Fig. 7 is a cross-section showing the lever employed in connection with the long jointed wire. Fig. 8 is a section and partial elevation, showing the detachable handle employed for moving the operating-lever. Fig. 9 is a side view of a bracket employed for supporting the wire casing and the fulcrum for the lever. Fig. 10 is a sectional elevation, illustrating the construction and arrangement of the long jointed wire in its casing and the means employed for moving it. Fig. 11 is an elevation of one end of the wedge-bolt, by means of which the registering mechanism is actuated and with which the operating wire or wires are connected. Fig. 12 is a sectional elevation, showing the lever and its connections employed for arresting the index or pointer exactly at the zero-point when being adjusted by the key. Fig. 13 is a view similar to Fig. 2, but on a larger scale, the central bar and the lever for operating the stopping-pin being partly broken away to facilitate the illustration.

In all these figures like letters of reference, wherever they occur, indicate corresponding parts.

A is the main wheel of the registering mechanism, mounted loosely on the shaft of the pointer. By the turning of wheel A the index or pointer B is, through intervening mechanism, moved over the dial-plate C one degree at a time for accomplishing the registration.

D is a bar pivoted concentrically with wheel A and carrying a dog, *a*, for engagement with the teeth on the margin of said wheel, the teeth being in number the same as the degrees marked off on the dial-plate—in this instance, one hundred.

At E, Figs. 5 and 11, is the wedge-shaped piece or bolt by means of which bar D is forced over to one side, and with which the operating appliances are connected. A retracting-spring, *b*, operates to return bar D to its normal position, ready for the next movement. When the register is to be operated from one station only, as from the front of the car, the push-bolt F is connected with wedge-bolt E, the same being inclosed in a suitable pipe, G, provided with a disk, *c*, for abutment of the operating-lever, and having a suitable returning-spring, *d*.

H is the operating-lever, fulcrumed between



the depending arms  $H'$  upon the coupling  $H^2$ . This lever has a short projecting neck,  $e$ , with which the handle engages, the neck being so short as to prevent the lever from being moved by the hand or fingers.

$H^3$  is a detachable handle, having a socket for the accommodation of neck  $e$ . When used at only one station, the neck  $e$  may be threaded and the handle screwed upon it, to be removed when the driver or operator leaves the station. When the register is operated from more than one station, the neck  $e$  is made plain, so that the handle may be instantly attached and removed. By inclining the handle when attached upon the neck or lever shown in Fig. 5, the wedge-bolt is pushed or pulled so as to cause the index to move one degree.

The sectional wire  $F' F'$  (shown in Fig. 10) is coupled with the opposite end of the wedge-bolt, as by the screw-eye  $F^2$ , and is intended to pull that bolt through the action of the levers, which on this side have slotted arms, as plainly shown in Figs. 7 and 10, crossing the wire and bearing against buttons, as  $f$ , placed at or near the joints between the sections. The joints are located in the couplings, which also serve to support the sections of covering-pipe. By thus jointing the wire it may be readily adapted to any location, and by pulling upon it, instead of pushing, it is not open to the objection of bending, and may therefore be made much lighter than those rods intended to be pushed toward the instrument. By these appliances the instrument may be operated from one side or both, as may be required. For supporting the covering-pipe any required number of the couplings  $H^2$  are provided with arms  $h$ , forming a convenient bracket for securing to the car-frame or elsewhere. In this class of instruments it frequently occurs that the index jumps or registers more than intended, and this arises in one case from the momentum given the main or driving wheel by an unusually sudden blow upon the operating-lever. To prevent this I place a solid stud,  $i$ , near the margin of the driving-wheel and in such close proximity thereto that when the dog  $a$  carries this wheel a short distance it, the dog, will ride under the stud and be prevented from rising when pressed upon by the succeeding tooth of the wheel, as would occur should the wheel continue its movement. The dog being prevented from rising, the tooth cannot pass under for want of room, and the wheel is thus prevented from further turning. In another case the index is sometimes moved too far when being adjusted by the key, and this I obviate by the application of an ordinary flat friction-spring, as  $w$ , made to bear upon the wheel  $l'$  upon the shaft of the index, and producing just enough friction thereon to prevent said wheel (and thus the index) from moving under the influence of any momentum which may be given the parts by a sudden turning of the key.

$K$  is a toothed wheel secured to the arbor of the lock, located in the lower part of the in-

strument and turning with said arbor. This wheel  $K$  meshes with an intermediate wheel,  $K'$ , which in turn is geared with a pinion,  $k$ , turning upon an annular shoulder or sleeve formed upon wheel  $l'$ , as shown, and riding between the two gears  $l' l'$ . The wheel  $K$  is double the size or has double the number of teeth on the pinion  $k$ , so that whenever the wheel  $K$  is turned one-half way around the pinion is (through the intermediate wheel,  $K'$ ) caused to make a complete revolution. The pinion  $k$  is secured to the wheel  $l$ , which latter rides independently of the shaft of the pointer, and carries a pin upon its side for engagement with a pin,  $m$ , projecting from the shaft of the pointer or index.

The wheel  $l'$  is secured to the pointer-shaft and carries that shaft with it, being itself moved by the main wheel through the intervention of the dog  $l'$ , which travels with the main wheel. The wheel  $l'$  is prevented from turning backwardly by a detent,  $l''$ , connected with the stationary cross-bar  $L$ . As the index is moved, point by point, the pin  $m$  on the shaft is carried away from or in advance of the pin on the face of wheel  $l$ , and when the latter wheel is turned, by applying the key in the lock its pin gradually approaches that on the shaft, and when in contact therewith causes the index and wheel  $l'$  to move with the key in the lock. Thus the index or pointer is turned forward to zero without disturbing the main wheel, and from this point the register-  
ing may be proceeded with, as before.

The advantage in resetting the index by only half a turn of the key is that it affords a simple and satisfactory means of indicating the trip on which the register is being employed. Thus on the up trip the lock-plate is turned up, and on the down trip the same is turned down, as will appear from a simple perforation, as  $n$ , or other mark, which may be made to appear through the opening in the cover.

Upon the main wheel is attached or suitably formed a gear or cog wheel, (represented at  $M$ ), which engages with and is made to turn a smaller wheel upon the shaft  $N$ , carrying the gear-wheel  $o$ , which turns the counter  $O$ . This counter is of the usual construction, and is mounted in the side of the instrument, as indicated in Fig. 3; or it may be mounted in any other convenient position. The arrangement for turning it, by means of the shaft  $N$ , with its gears and connections, said shaft running parallel with the shaft of the main wheel, enables me to make the gears all plain, and to avoid the use of bevel gears, which are difficult and expensive to make and to adjust, as well as to always maintain in proper working position.

The counter is compelled to travel with the main wheel, and indicates the sum total of the registrations made by the instrument, being undisturbed by resetting of the index or pointer. In resetting the index it is prevented from being carried beyond the zero-point by the following simple means: Connected with the wedge-



bolt E is a lever, *p*, fulcrumed, as at *q*, and carrying on its outer end a pin, *r*. This pin projects down to about the upper surface of wheel *l*, on which is a narrow radial ledge, *s*, arranged to strike the pin *r* when down to its limit of movement. The movement of the wedge-bolt causes the lever *p* to elevate the pin *r* at each stroke, so that the operation of the instrument by the handle will always cause the pin to be carried out of the way of the ledge or detent *s*. In setting the index by the key the pin *r*, being then down, arrests the movement of the wheel (and thus the index) by reason of the ledge *s* striking against the pin. The ledge *s* is so placed on the wheel that when the pointer is at exact zero the ledge will abut against the pin, and further turning be prevented. By this means the operator can set the instrument quickly and with absolute accuracy, obviating that careful adjustment heretofore required. The lever *p* is shown as jointed, but obviously it might be made without a joint. In the example shown the joint operates only to accommodate the lever to the various movements of the wedge-bolt, and to allow pin *r* to move freely up and down in a vertical direction without unnecessary friction upon the surface of its guide. The key cannot be withdrawn from the lock except when the index points to zero, and this is a safeguard against fraud in the setting of the instrument.

The line P indicates the position of the alarm-bell, (omitted from Fig. 4.)

Q is the bell-striker, the same being actuated by the hook *t*, connected thereto, and caused to rise against and fall with the action of spring R at each advancement of a tooth in the margin of the main wheel, with which the hook is made to engage.

At *v v* are detents arranged to prevent any backward movement of the main wheel. The apparatus, constructed and arranged substantially as above described, is found in practice to admirably answer the several purposes or objects of the invention, as previously set forth.

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

1. In a register, the herein-described lever, combined with the push-bolt or sectional wire for operating the registering mechanism, the lever being fulcrumed, as explained, and provided with the depending neck, substantially as and for the purposes set forth.

2. In combination with the mechanism for operating the register and the lever having the depending neck, the detachable handle having the socket therein for the reception of the neck on the lever, substantially as shown and described.

3. In a register, the wedge-bolt for actuating the registering mechanism, the same being connected and combined with the sectional wire, having the joints and buttons at intervals, and the operating-levers, the wire being inclosed in the covering-pipe, substantially as and for the purposes set forth.

4. The combination of the movable pin, the lever for actuating the same, and the ledge upon the wheel for the purpose of arresting the index at the zero-point, substantially as shown and described.

5. The herein-described socket for supporting the register-operating appliances, the same being provided with the depending arms, between which the operating-lever is fulcrumed, and also with the projecting bracket-pieces for attachment to the car or other frame, substantially as shown and described.

6. In a register of the character herein set forth, the gear-wheel mounted upon the arbor of the lock, the loose pinion upon the shaft of the index, and the intermediate wheel, combined with the shaft of the index, the gear-wheel mounted thereon, the intermediate pins or projections, and the marked lock-plate and its perforated cover, the whole being arranged, as explained, so as to turn the index completely forward to the zero-point by a half-turn of the arbor or key, and at the same time expose the mark on the lock-plate through the opening in its cover, substantially as shown and described.

7. In combination with the main wheel of the register, a gear-wheel mounted thereon, and arranged to turn the gear upon the shaft connected with the shaft of the counter, the shaft of the counter and that of the main wheel being parallel with each other, substantially as and for the purposes explained.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

JAMES GOODFELLOW.

Witnesses:

JOHN BUCKLER,  
WORTH OSGOOD.