

(No Model.)

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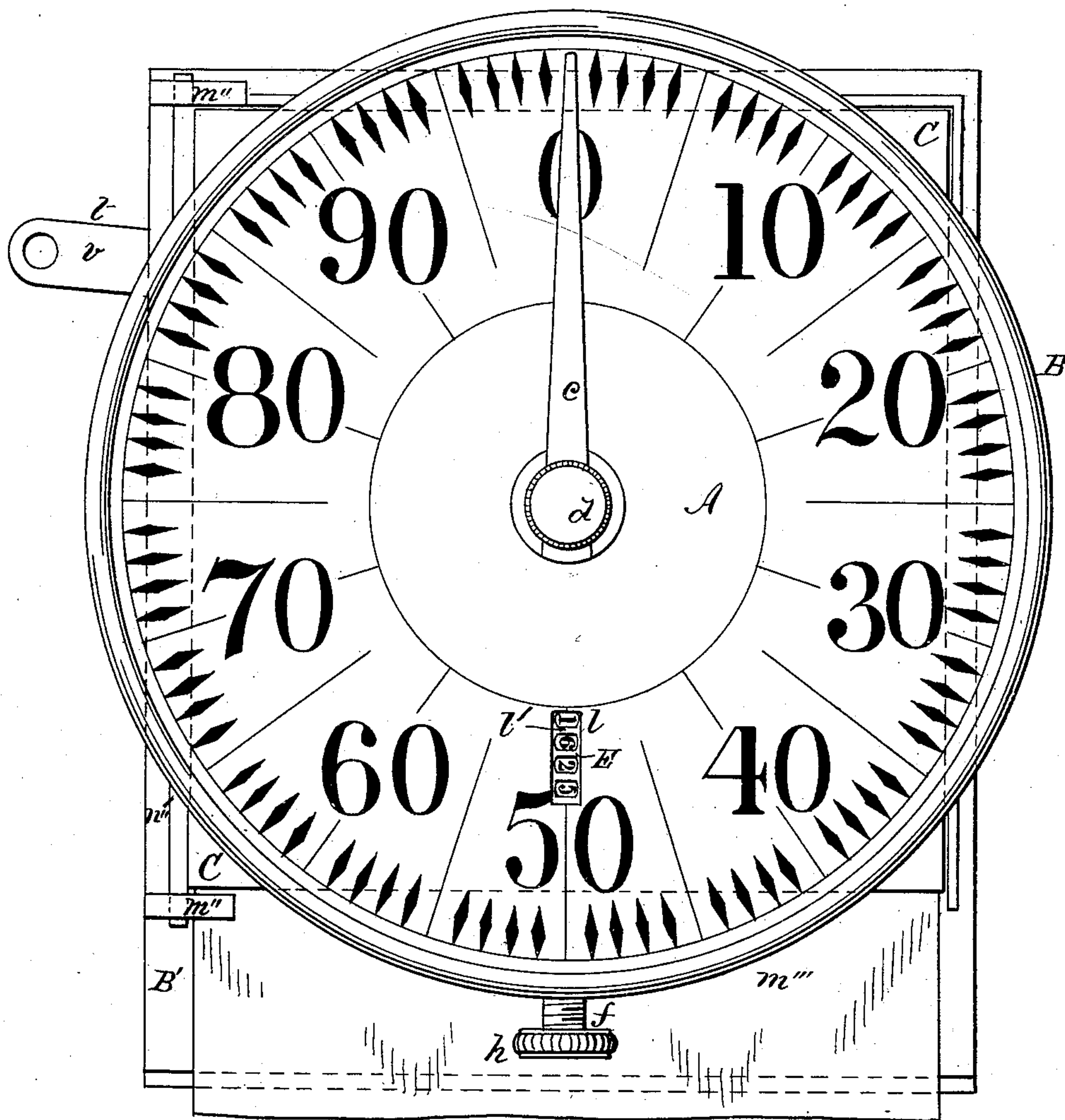
R. M. ROSE.

FARE REGISTER AND RECORDER.

No. 377,960.

Patented Feb. 14, 1888.

Fig. 1.



Witnesses.

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(No Model.)

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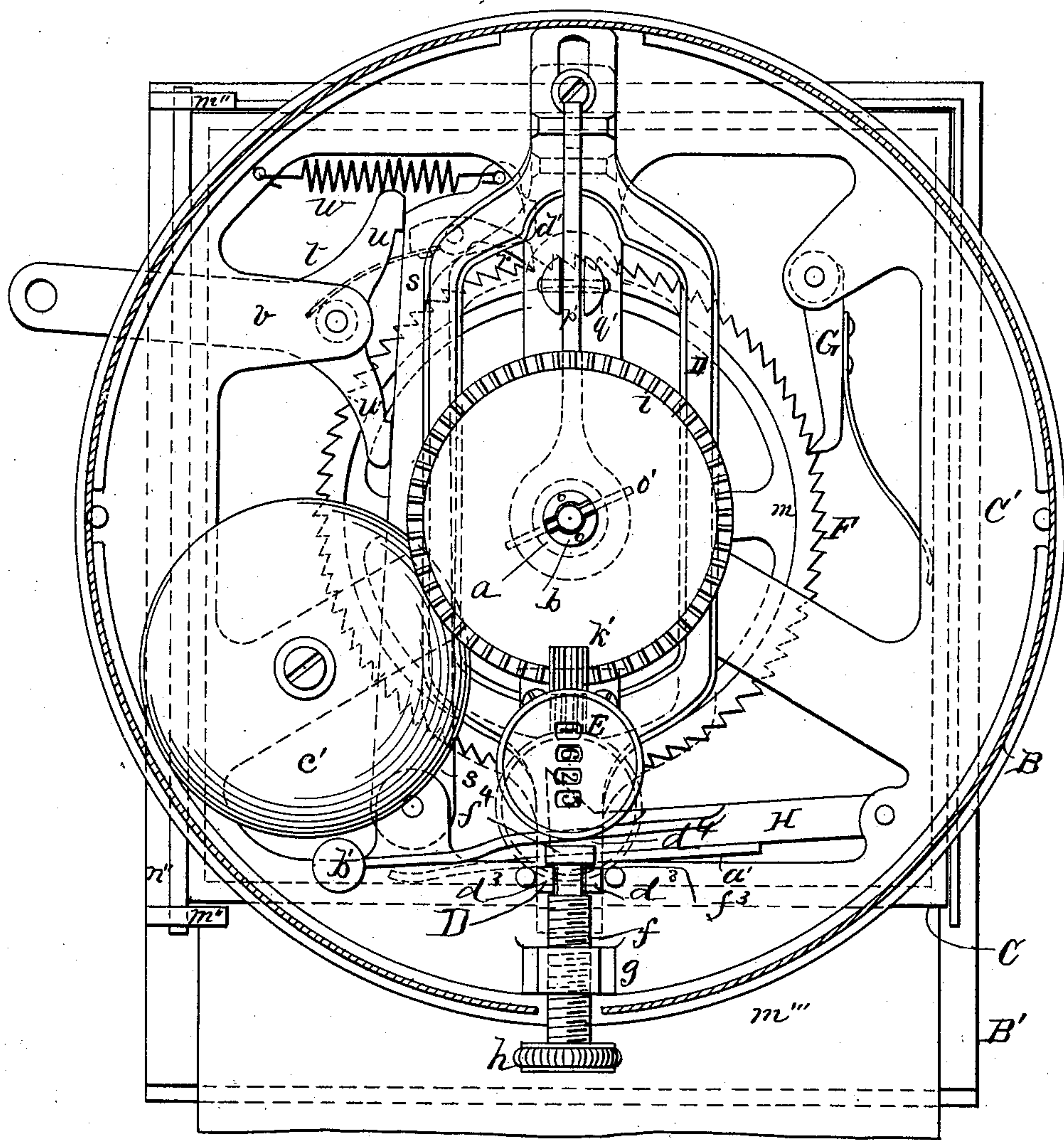
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Patented Feb. 14, 1888.

Fig. 2.



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(No Model.)

4. Sheets—Sheet 3.

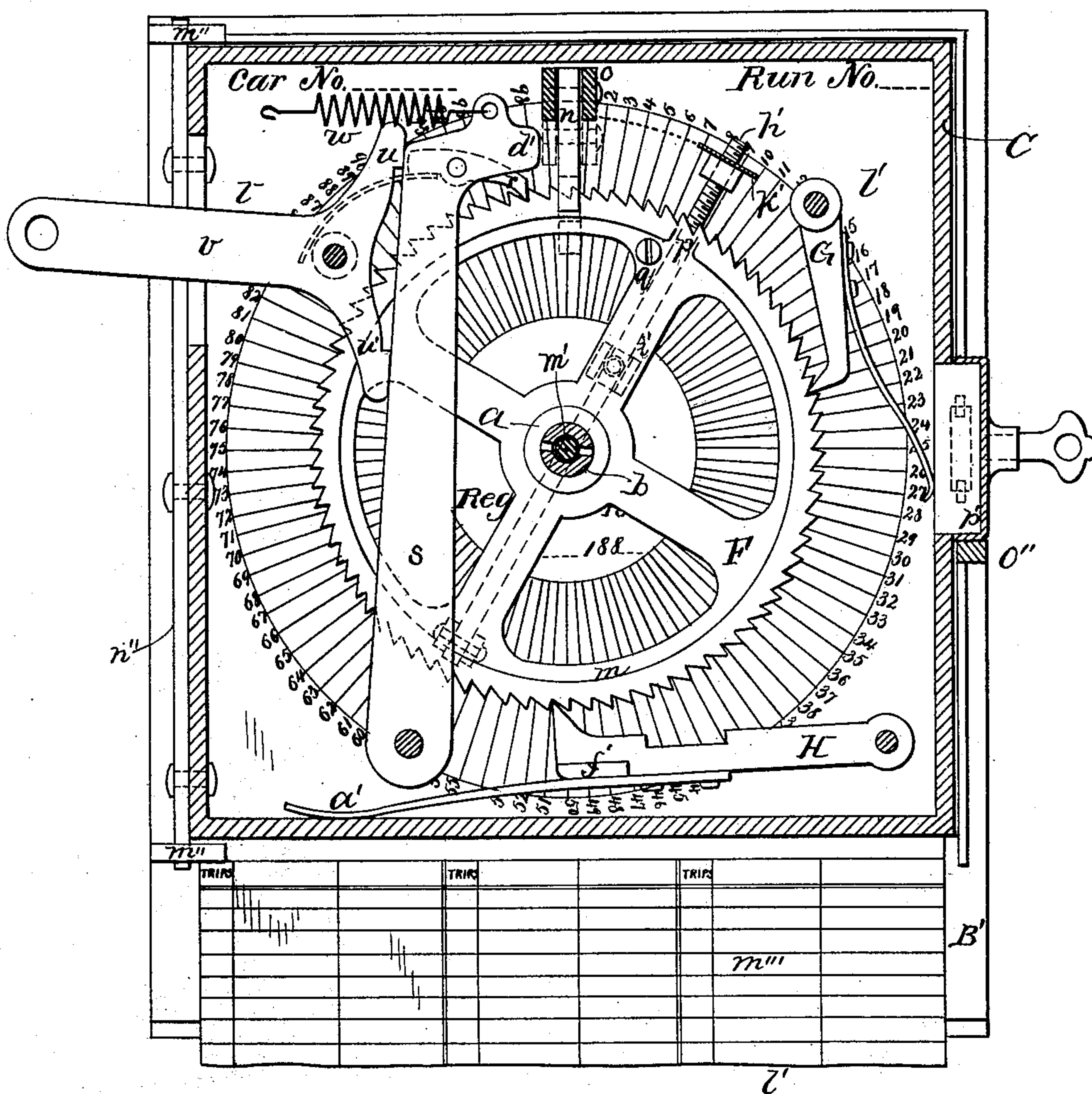
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Fig. 3.



Witnesses.

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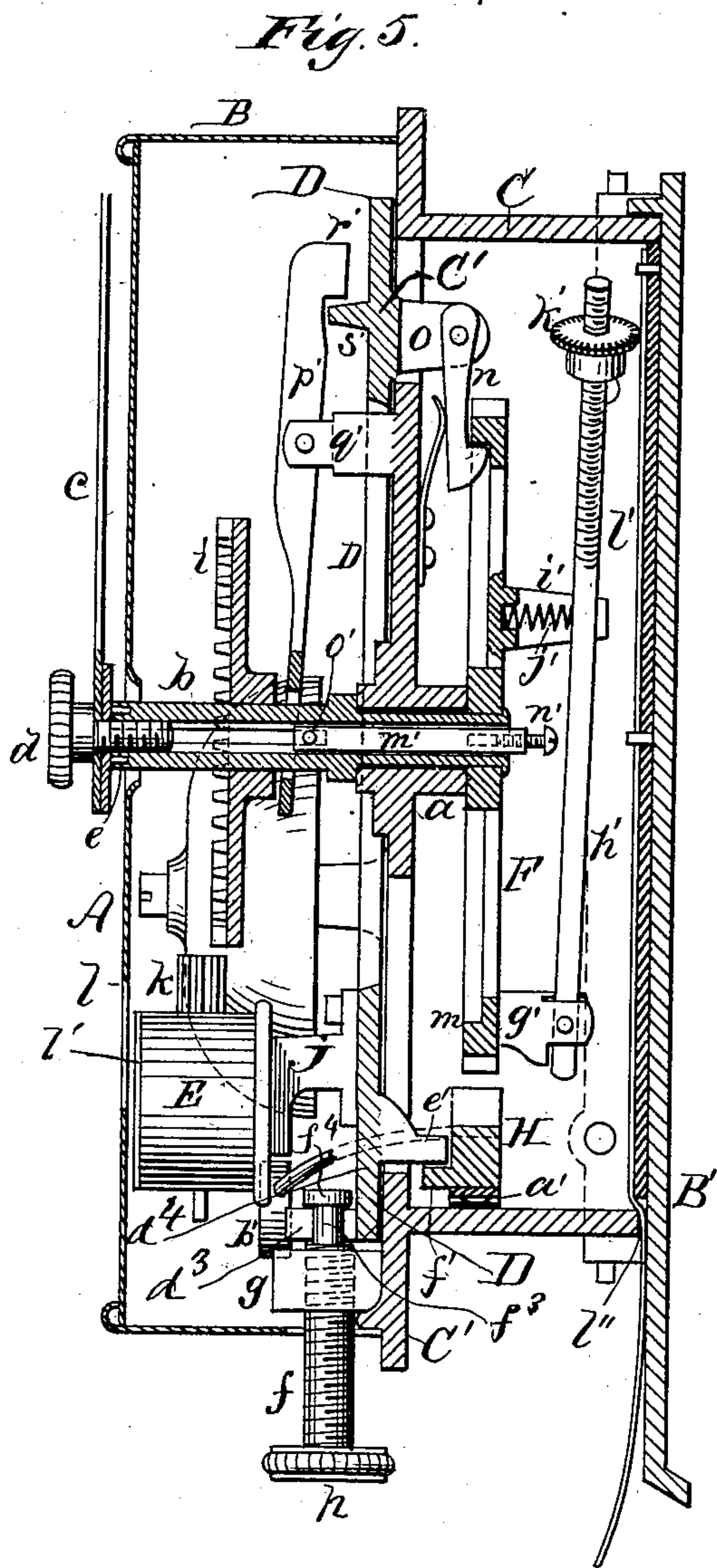
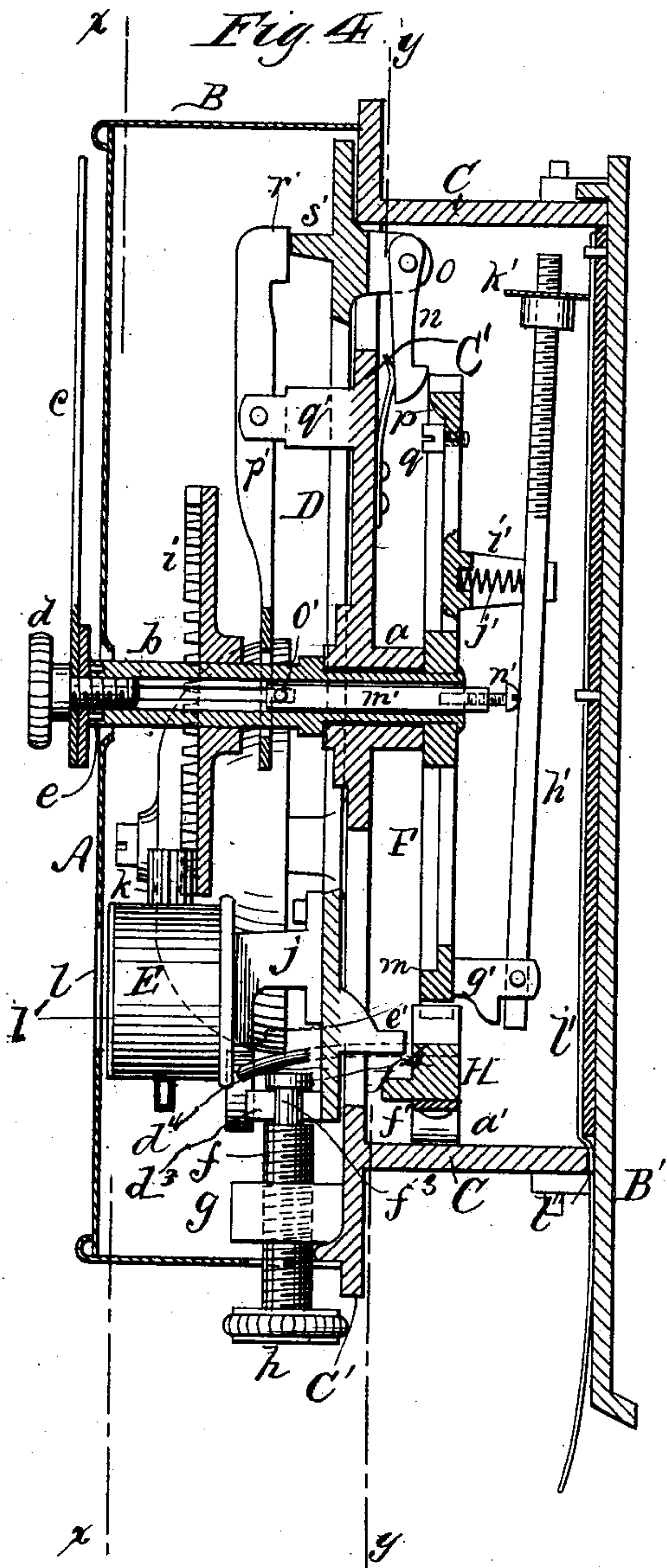
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4 Sheets—Sheet 4.

FARE REGISTER AND RECORDER.

Patented Feb. 14, 1888.



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UNITED STATES PATENT OFFICE.

REUBEN M. ROSE, OF NORWALK, CONNECTICUT.

FARE REGISTER AND RECORDER.

SPECIFICATION forming part of Letters Patent No. 377,960, dated February 14, 1888.

Application filed June 24, 1885. Renewed September 20, 1887. Serial No. 250,232. (No model.)

To all whom it may concern:

Be it known that I, REUBEN M. ROSE, of Norwalk, in the county of Fairfield, State of Connecticut, have invented a new and useful Improvement in Fare Registers and Recorders, of which the following is a specification, reference being had to the annexed drawings, forming a part of the same, in which—

Figure 1 is a front elevation. Fig. 2 is a vertical transverse section taken on line $x x$ in Fig. 4. Fig. 3 is a vertical transverse section taken on line $y y$ in Fig. 4. Figs. 4 and 5 are vertical sections taken through the index-carrying spindle, showing the registering mechanism in two positions.

The invention consists in the construction and novel arrangement of parts, hereinafter described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

The dial A of the register is of the usual description and is mounted in a cylindrical casing, B, which is secured to the front of the square box C, hinged to the back plate, B'. The circular front plate, C', of the square box C, forming the support for the casing B, is apertured to provide for the communication between the mechanism contained by the casing B and that situated in the box C.

In the center of the front plate, C', is formed a sleeve, a , in which is journaled a hollow spindle, b , extending beyond the dial A and carrying an index, c , which is secured to the end of the spindle b by a milled screw, d , passing through the index and into the internally-threaded end of the spindle. The index c has its lower end made circular and has secured to the inner surface of said end a circular plate which is provided with lug-pins e , which enter into corresponding recesses around the central orifice at the end of the spindle b and insure the moving of the index with the spindle.

D, Figs. 2, 4, and 5, is a frame extending vertically across the plate C', provided with a large central opening, as shown, and having two similar lugs, d^3 d^3 , standing from the end of its downwardly-extending arm d^4 .

f is a screw having a milled head, h , and passing through the lower part of the casing B and through a threaded opening in a lug, g , standing from the plate C'.

f^3 is the reduced end of the screw f , and f^4 is a head on said end. The lugs d^3 lie on each side of the said reduced end, the head f^4 lying above them, so that the frame D moves upon the plate C' up and down with the screw f .

i is a crown-wheel on the spindle b , and E is a counting device or counter supported by a bracket, j , standing from the frame D so that the counter moves therewith.

The counter E is provided with a pinion, k , arranged to mesh with the crown-wheel i , and the shaft of said pinion is connected with mechanism of the ordinary well-known construction to operate the dial l , seen through the slot l in the front plate of the register-dial A.

Upon the extreme inner end of the spindle b is secured a ratchet-wheel, F, provided with an internal rim or ledge, m , which is arranged to be engaged by a spring-acted catch, n , carried by ears o on the frame D, which project through a proper opening in the plate C' into the casing C, the said catch being arranged so that when the frame D is moved downward, in the manner already described, it will engage the rim m , and will prevent the said frame from being returned to its original position until the ratchet-wheel F is turned forward, so as to bring the index c in front of the dial A to the zero-point or point of starting. At a point in the rim m corresponding in position with the index c there is an inclined surface, p , Fig. 4, over which the catch n may escape when the index is turned so as to bring the inclined surface opposite the catch, and the frame D may then be moved back to its original position. To insure the stopping of the ratchet-wheel at this point, a stop-screw, q , is inserted in the ratchet-wheel, and when the wheel is turned back until the stop-screw q strikes the catch n the said catch will be opposite the inclined surface p in the rim m . It will readily be seen from the above that unless the index c is returned to the zero-point or point of starting the catch n cannot be returned to its original position, because it will be retained by the engagement with the rim m of the ratchet-wheel.

The ratchet-wheel F is operated by a pawl, r , carried by an arm, s , pivoted to a bracket rising from the floor of the box C. The arm s is operated by a three-armed lever, t , the short-

er arms, u u' , of which rest normally against the straight side of the arm s . The longer arm, v , of the three-armed lever t projects through an aperture in the side of the box C, in position to be operated by a bell-cord or other suitable means, and the arm s is provided with a spring, w , by which it is withdrawn after having been moved forward by the movement of the lever t . The ratchet-wheel F is prevented from retrograde movement by spring-acted pawls G H, the pawl H being provided with a heavy spring, a' , and carrying a bell-hammer, b' , Fig. 2, which is made to strike a bell, c' , whenever the pawl H drops off from one of the teeth of the ratchet-wheel F.

A projection, d' , is formed on the free end of the arm s , and when the register is at rest the projection d' is opposite the path of the ears o , carried by the frame D, so that when the said frame D is moved downward by the screw f , previous to adjusting the register, the ears, being opposite the projection d' , form a stop, which prevents the arm s from being moved during the operation of setting the register-index c . The frame D also carries a short arm, e' , which is capable of engaging a lug, f' , on the pawl H when the frame D is drawn down by the screw f , as before described, and moves the pawl H out of engagement with the ratchet-wheel F, so that the bell will not ring when the said ratchet-wheel is turned forward in the operation of setting the register-index c .

A short forked standard, g' , projects from the back of the ratchet-wheel F and receives one end of a rod, h' , which is pivoted therein, and the opposite end of the rod is guided by a slotted standard, i' , projecting from the back of the ratchet-wheel, and is forced backward by a spiral spring, j' , contained in the standard i' .

The free end of the rod h' is threaded and carries an internally-threaded toothed wheel, k' , which revolves in contact with a recording-slip, l' , placed in the back of the box C. In the hollow spindle b there is a rod, m' , in the inner end of which is a threaded recess, in which engages a screw, n' , which bears against the rod h' . The pin o' , passing through a diametrical opening in the rod m' , projects through slots in the sides of the hollow spindle b in position to be engaged by the end of the lever p' , which is fulcrumed in the forked standard q' , projecting from the front plate of the box C. The free end of the lever p' is enlarged to form a disk which is apertured to receive the spindle b , so that it may press upon the pin o' at any part of its revolution. The opposite end of the lever p' is provided with a cam, r' , which is engaged by a lug, s' , projecting from the frame D, when the said frame is moved upward after having reset the register-index. The engagement of the lug s' with the cam r' forces the free end of the lever p' against the pin o' and causes the rod m' to exert a greater pressure on the rod h' . This occurs when the recording mechanism is in condition to indicate or count fares, and the

extra pressure produced by the lever p' upon the rod h' causes the screw n' to press on the rod h' and thereby causes the toothed wheel k' to make an impression in the paper slip l' ; but when the frame D is moved down by the screw f , previous to resetting the registering mechanism, the cam r' is disengaged from the lug s' , and the rod h' then receives only pressure enough from the spring j to cause the wheel k' to revolve on the threaded end of the rod h' , and so bring it into a new position for recording at the time the other portions of the mechanism are ready for operation. The screw n' is adjustable inward and outward in the end opening of the rod m' , so that its distance from the rod h' may be varied to bear with more or less force thereon when the lever p' moves the rod m' in the manner described, and consequently causes the toothed wheel k' to make more or less deep impression on the slip l' . By driving the screw n' entirely in its opening the wheel k' may be prevented from marking at any time.

The paper slip l' projects through a slit, l'' , in the bottom of the box C, and is provided with a part, m''' , upon which the conductor who operates the recorder may write his name or his number and the number of fares, as indicated by the index c , for each trip. The concealed record made by the tooth-wheel k' rolling on a paper slip, l' , corresponds with the registration or count of the index c , so that the writing of the conductor's name upon the projecting part m''' of the slip l' , together with the number of fares recorded for each trip, forms an effectual check upon the conductor and upon the recorder itself, so that any errors in the report of the conductor or in the operation of the recorder are likely to be manifested.

The hinge by which the box C is secured to the back plate, B', consists of the ears m'' on the back plate and the rod n'' , riveted to the box C. The hinge, however, forms no part of the invention, and while the construction shown is preferable, any variety of hinge could be used.

p' is the lock, and o'' the guide projection for the same, the lock being attached to the box C and the projection to the back plate, B'.

As seen by comparing Figs. 1 and 3, the ratchet-wheel F has the same number of teeth that the dial A has points, (in each case one hundred.) Hence, as the ratchet is turned one tooth at each movement of the lever v u w' , arm s , and pawl r the index moves one point, corresponding with the same. The wheel i and pinion k are also arranged to cause the counter E to advance one number for each point advanced by the index on the dial; but when the index is moved back to the zero-point the counter is disengaged, as described, so that it will indicate continuously and will not move back with the index. Thus all the fares taken during the day may be shown by the counter. The recording mechanism is also arranged to mark one point or score for

each point advanced by the index on the dial. The recording-mechanism case is locked and cannot be tampered with by the conductor, and if all is right its record will correspond with the showing of the register-dial.

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

1. In a fare register and recorder, the combination, with the wheel F, having the rim *m* and beveled surface *p*, of a movable catch, *n*, arranged to engage the rim *m*, as herein specified.

2. The combination, in a fare register and recorder, of the sliding frame D, spring-acted catch *n*, carried thereby, the wheel F, having the rim *m* and inclined surface *p*, and the stop or screw *q*, inserted in the wheel at the side of the beveled surface, as herein specified.

3. The combination of the casing B, provided with the dial A, the casing or box C, hinged to the casing B, the plate C', provided with the sleeve *a*, the hollow spindle *b*, journaled in said sleeve and carrying the index *c*, the rod *m'*, with the pin *o'* passing through its inner end and the screw *n'* engaged in an opening in its outer end, the pivoted rod *h'*, the toothed wheel *k'*, engaged on the threaded end thereof, the strip *l'*, secured within the box C, the pivoted lever *p'*, having the ring on its lower end to engage against the pin *o'*, the vertically-moving frame D, having the lug *s'*, and means, substantially as described, to raise and lower said plate.

4. The combination of the hinged casings B and C, the hollow spindle *b*, said spindle carrying the index *c*, the plate C', having the sleeve *a*, in which said spindle is journaled, the

rod *m'*, pin *o'*, and screw *n'* with the pivoted rod *h'*, toothed wheel *k'*, strip *l'*, secured within the casing C, the pivoted lever *p'*, frame D, provided with the lug *s'*, and screw *f*, passing through an opening in the casing B, engaging in a threaded opening in the lug *g* of the plate C, and having its reduced part *f'* engaged between the lugs *d'* of the frame D, so as to raise and lower said frame, substantially as specified.

5. The combination of the spindle *b*, the plate C', having the sleeve *a*, in which said spindle is journaled, the crown-wheel *i*, rotating with the spindle *b*, the vertically-moving frame D, provided with the lugs *d'*, the counter E, the bracket *j*, forming part of the frame D and having the counter E secured to it, the pinion *k*, attached to and actuating said counter and arranged to mesh with said crown-wheel *i*, and the screw *f*, passing through an opening in the casing B, engaging a threaded opening in the lug *g* of the plate C', and having the reduced part *f'* held between the lugs *d'* of the frame D, substantially as specified.

6. The combination of the slip *l'*, secured within the box C and having a portion, *m'''*, passed through the slot *l''* in said box and arranged and adapted to receive the signature and notes of the conductor, with the spindle *b*, pin *o'*, pivoted lever *p'*, lug *s'* on the vertically-moving plate D, screw *n'*, pivoted rod *h'*, spring *j'*, and toothed wheel *k'*, all constructed and arranged substantially as and for the purpose specified.

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Witnesses:

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H. C. HAGEN.