

(No Model.)

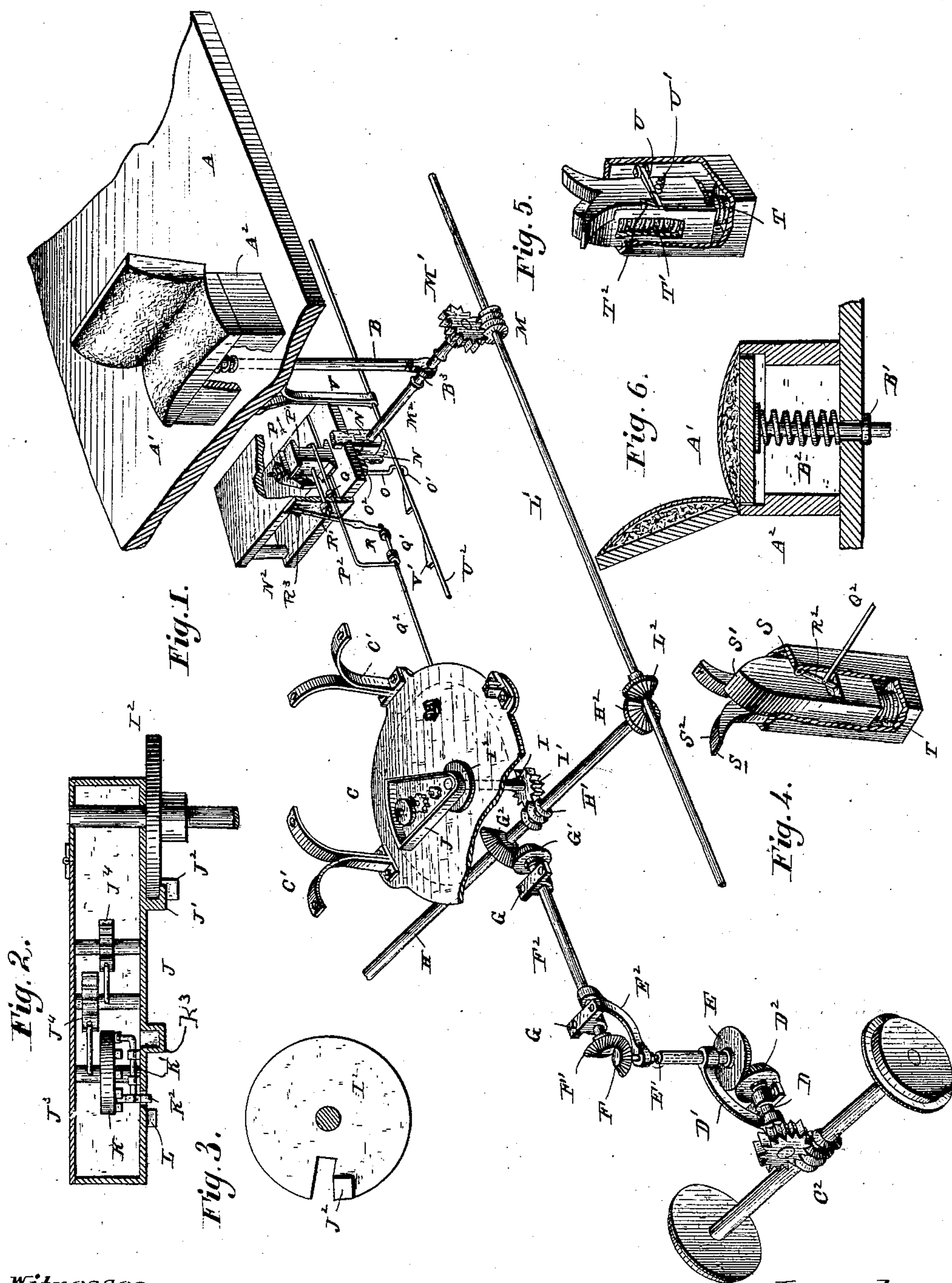
2 Sheets—Sheet 1.

J. R. TROTT & J. W. McELVAIN.

AUTOMATIC REGISTER.

No. 281,652.

Patented July 17, 1883.



Witnesses:

J. Henry Kaiser.
J. J. McCarthy.

Inventors:

Jno. R. Trott and J. W. M^cElwain
By L. M. Alexander
Attorney.

(No Model.)

2 Sheets—Sheet 2.

J. R. TROTT & J. W. McELVAIN.

AUTOMATIC REGISTER.

No. 281,652.

Patented July 17, 1883.

Fig. 7.

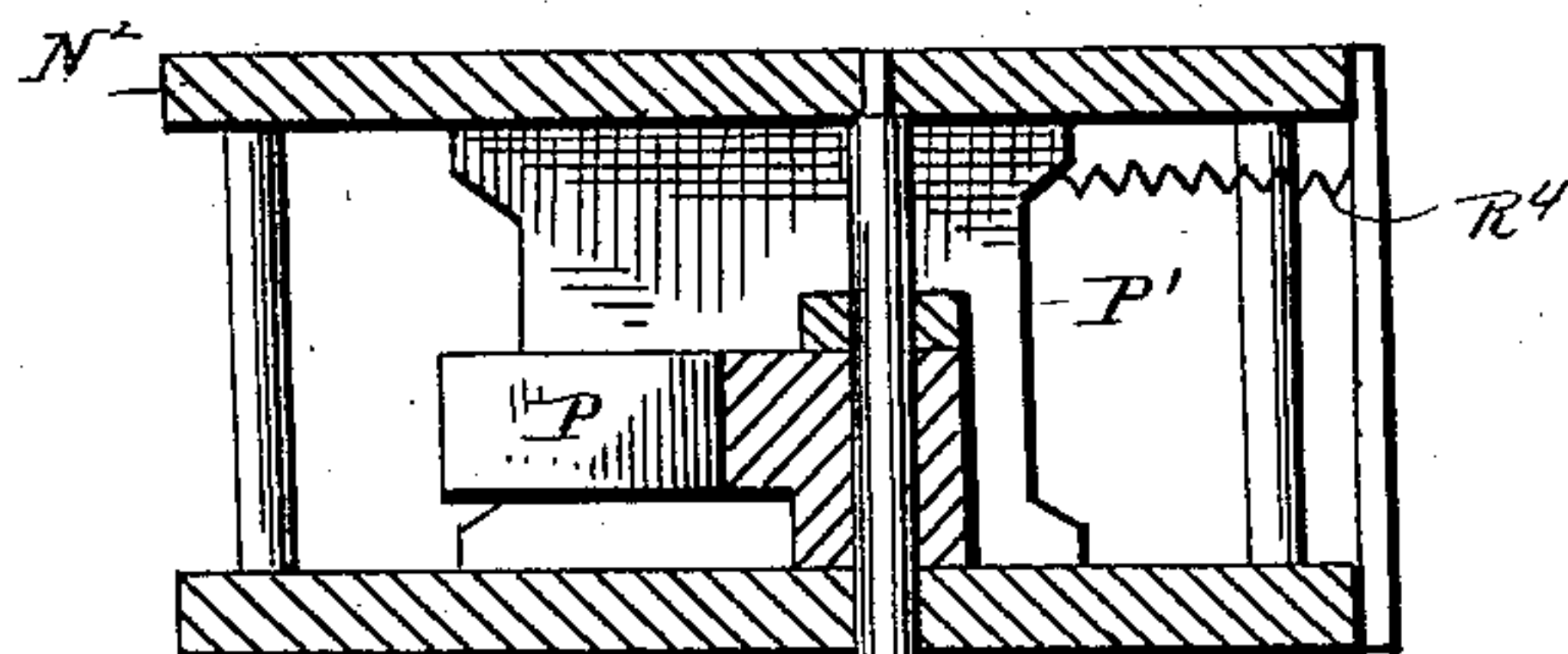


Fig. 9.

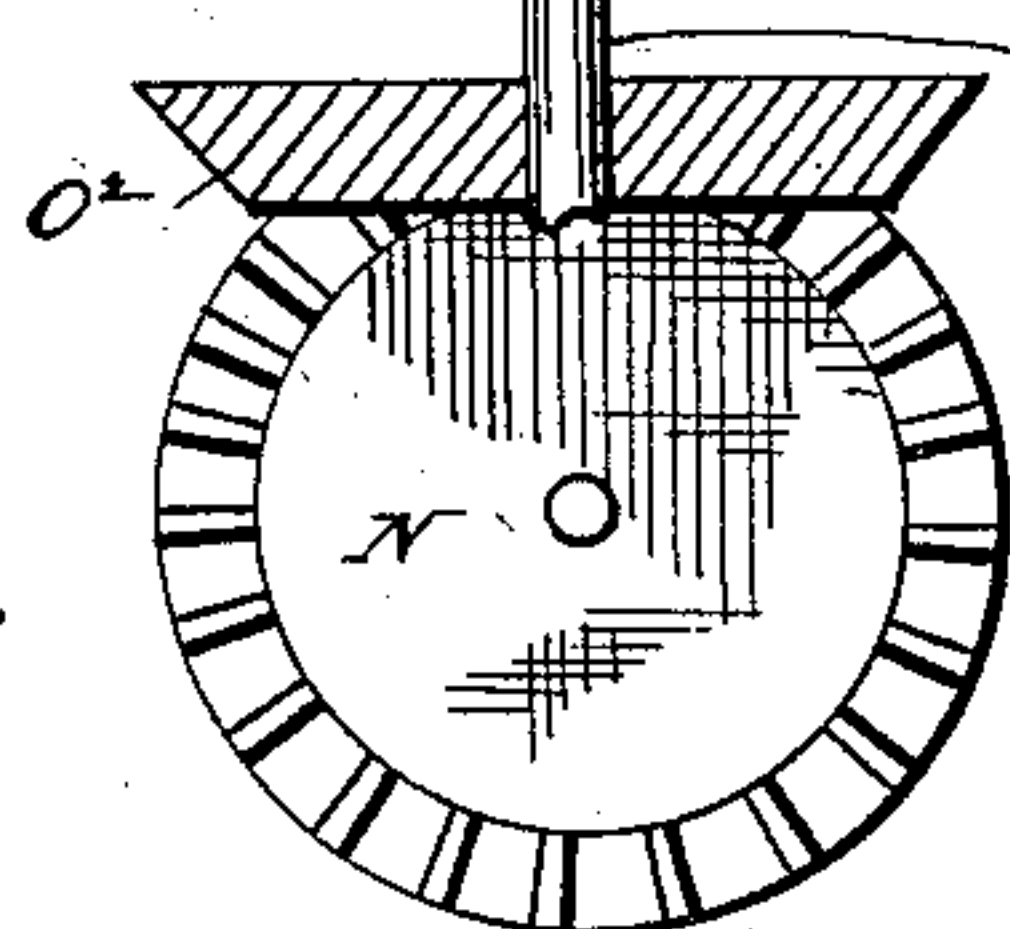
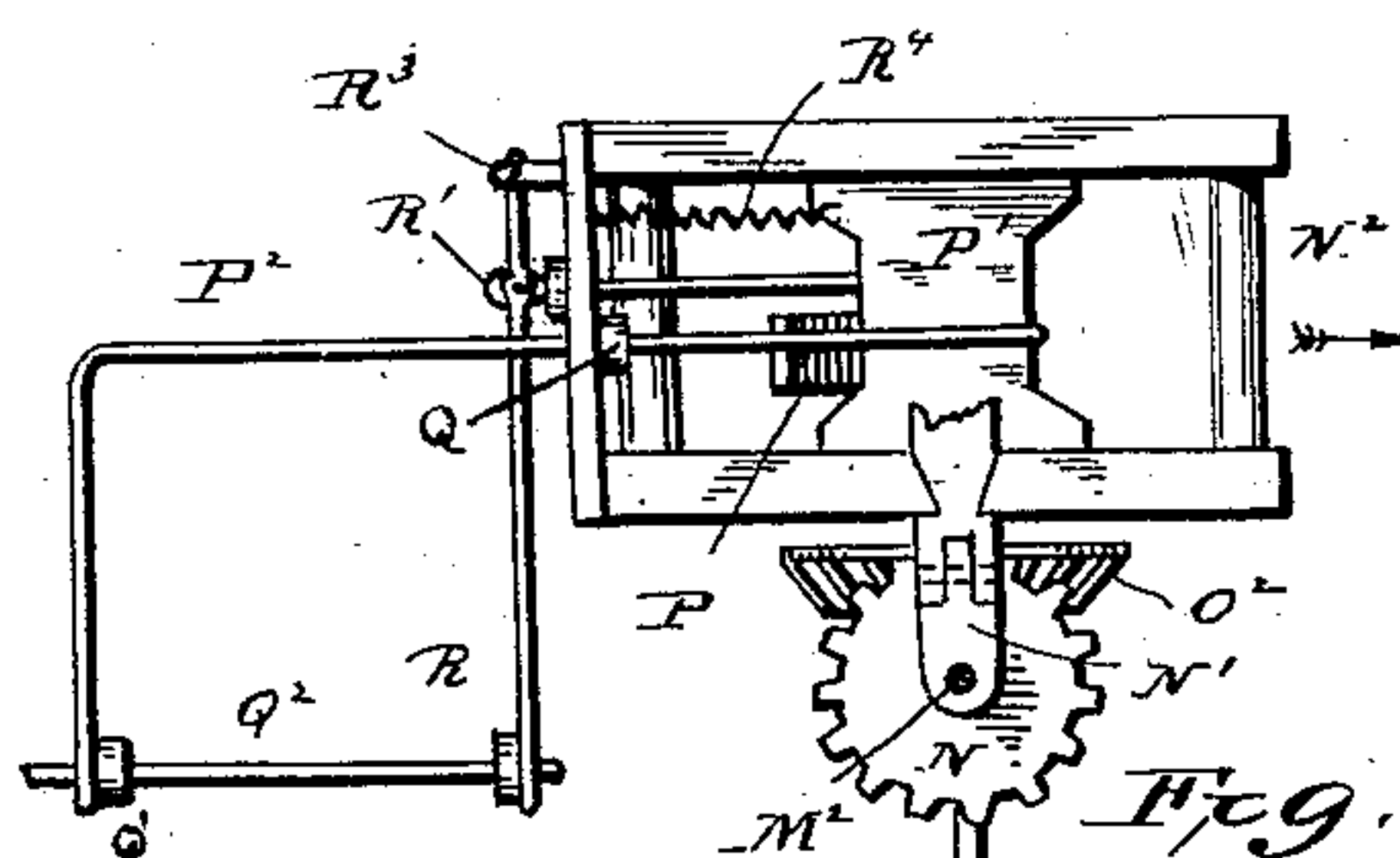


Fig. 8.

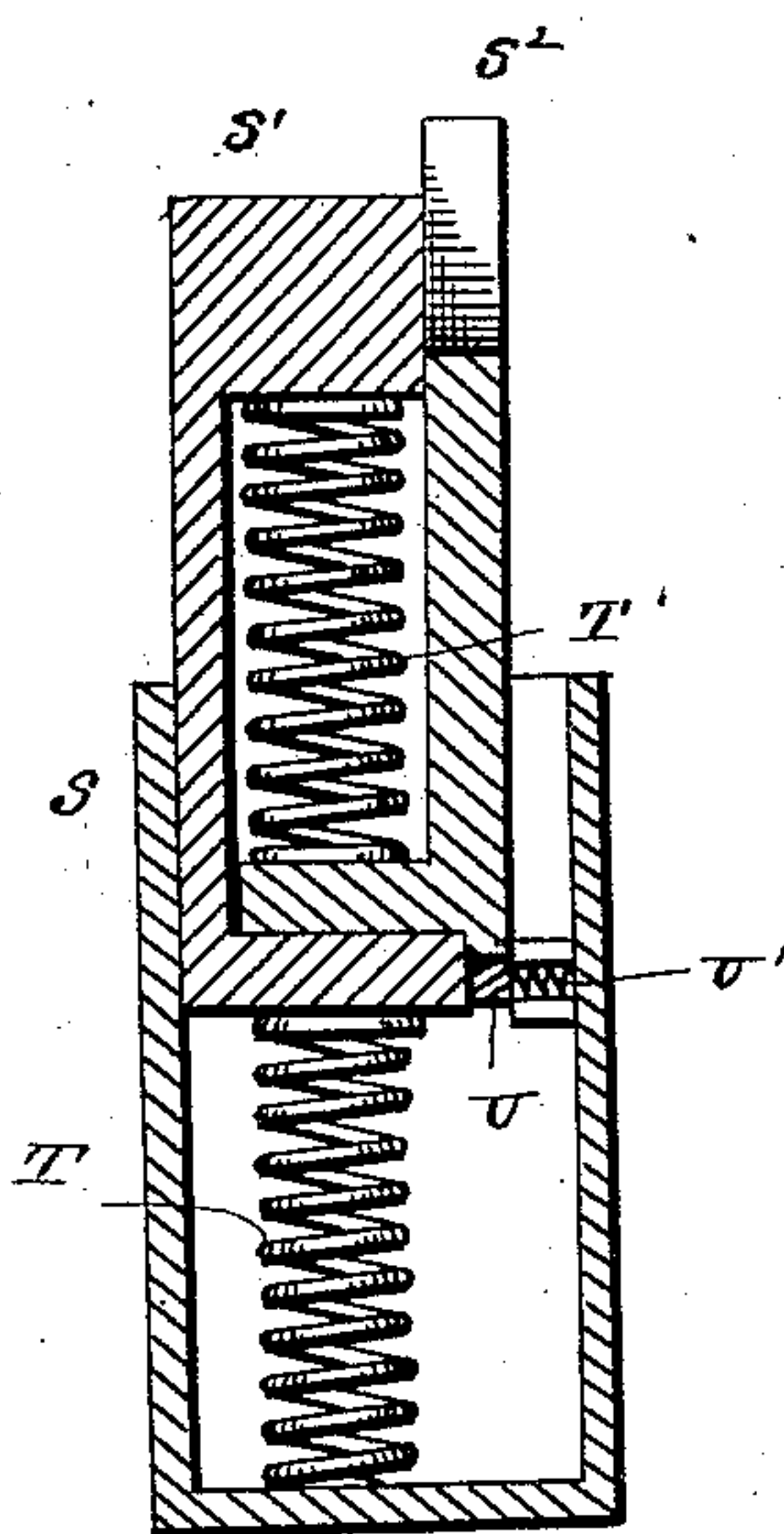
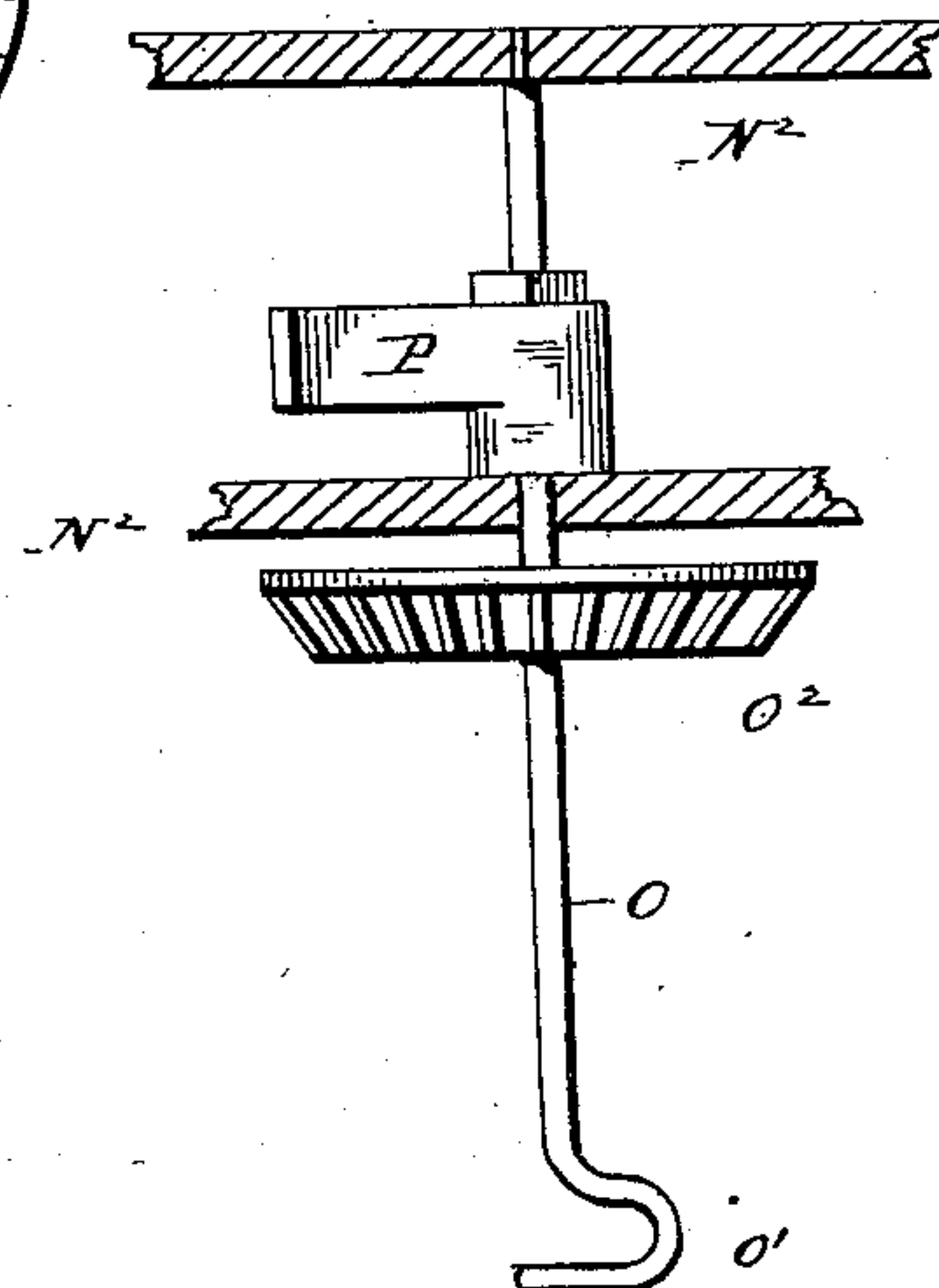


Fig. 10.



Witnesses.

J. J. Mc Carthy.
Wm. J. Alexander

Inventors.

Jno. R. Trott and J. W. McElvain
By C. H. Alexander
Attorney.

UNITED STATES PATENT OFFICE.

JOHN R. TROTT AND JAMES W. McELVAIN, OF AUBURN, ILLINOIS.

AUTOMATIC REGISTER.

SPECIFICATION forming part of Letters Patent No. 281,652, dated July 17, 1883.

Application filed April 10, 1883. (No model.)

To all whom it may concern:

Be it known that we, JOHN R. TROTT and JAMES W. McELVAIN, citizens of the United States, residing at Auburn, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Automatic Registers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in automatic registers for indicating the number of miles ridden by each passenger in a railway-car, it being especially adapted for use in connection with steam passenger-coaches; and it has for its object to keep an accurate account of the distance traveled by the respective passengers, and to indicate the same upon the dial-plate, whereby a comparison between such registration and the tickets and money which the conductor has in hand at the end of the route may be readily had, and any discrepancy detected.

This invention consists, essentially, in the employment of a yielding seat, and mechanism adapted to be actuated thereby and to receive motion from one of the axles of the coach, in combination with a rotating registering device and means for imparting motion received from one of the axles of the coach thereto.

25 In the accompanying drawings, forming a part of this specification, and on which like letters of reference indicate corresponding features, Figure 1 represents a perspective view of my improved fare-register, a portion of a car-floor, and a pair of truck-wheels; Fig. 2, a longitudinal section of the register-casing and its pinions or wheels; Fig. 3, a plan view of the disk which carries the register-casing; Fig. 4, a detail perspective view of one of the tripping-dogs, a part of the casing being broken away; Fig. 5, a like view of a tripping-dog, taken from the opposite side; Fig. 6, a vertical cross-section of the car-seat; Fig. 7, a view, partly in section and partly in elevation, of the frame for supporting and the means for operating the sliding head; Fig. 8, a vertical sectional view of the sliding dog and bolt and their casing. Fig. 9 represents a side elevation of the sliding head, the supporting-

frame, the means for reciprocating the said block, and the several rods which, through the action of the said head, actuate the devices which engage the register mechanism; and Fig. 10, a vertical shaft having an arm secured to its upper end for imparting motion to the sliding head, a crank at its lower end which engages with means for returning the said arm to the starting-point, and a beveled pinion by which the said shaft receives its motion.

The letter A indicates a portion of the floor of a railway-coach, upon which is mounted the seat A', adapted to have a short vertical movement within the frame A². To said seat is attached a vertical rod, B, which extends through the bottom of the car, and is provided with a collar, B', and around which is adapted to fit a spiral spring, B², the spring serving to normally support the seat and the collar to limit its upward movement.

To the under side of the bottom of the car is attached a stationary plate, C, by means of suitable standards, C', for a purpose which will presently appear.

One of the supporting-axles is provided with a worm, C², which intergears with a pinion secured to a shaft, D, mounted in a frame, D', the latter being secured to the frame-work of the truck or to any other support. The said shaft is provided with a bevel-pinion, D², adapted to intergear with a like pinion, E, mounted upon a shaft, E', said shaft having its journals in the frames D' and E².

The upper end of the shaft E' carries another bevel-pinion, F, which engages a like pinion, F', on a shaft, F², which rotates in a frame, E², and which is supported by the blocks G, secured preferably to the car-bottom.

Upon a shaft, F², is mounted a bevel-pinion, G', which intergears with a similar pinion, G², carried by a transverse shaft, H, the latter being adapted to be supported by suitable hangers depending from the frame or bottom of the coach. This shaft H is provided with a worm, H', and at each end with an ordinary bevel-pinion, H², (only one being shown in the present instance.)

Passing vertically through the plate C is a

shaft, I, the lower end of which carries a pinion, I', which engages with the worm H', and to the upper end is secured a disk, I², the said disk resting upon the upper side of the plate C, by which means the shaft I is supported and the engagement of the pinion I' and the worm G' maintained. To this shaft is also loosely secured the registering-casing J, the upper side of which is provided with a hinged cover, J², which forms bearings for the upper ends of the shafts which carry the registering-wheels, and by which cover access is had to the interior of the casing should the parts become disarranged. The under side of said casing has a lug, J', adapted to engage with a stud, J², which extends from the disk I², by which the casing is made to revolve.

Mounted within the casing J are a series of registering wheels or pinions, J⁴, of the ordinary or any approved construction. The first of the series (indicated by the letter K) has its teeth extending from its lower side. The shafts of the first two of these series are provided with radial arms which engage with the teeth of the registering-wheels J⁴ J⁴. Mounted within the casing, and beneath the wheel K, is an intermittingly-rotating shaft, K', one end of which has an arm adapted to engage the teeth of said wheel, and the other a toothed disk, K², which extends through a slot in the bottom plate of the casing, and which receives intermittent motion by engagement with devices to be presently mentioned. This plate has extending from it a lug, L, the function of which will hereinafter more fully appear, and the letter K³ indicates a projection extending from the said plate, the said projection serving to close an aperture in the plate and to form a cavity through which the bent end of the shaft K' may pass.

The letter L' indicates a shaft which extends the entire length of the car, or nearly so, and is supported by suitable hangers attached to the bottom of the car. This shaft has a bevel-pinion, L², mounted upon it, which engages with a like pinion, H², and a worm, M, which intergears with a pinion, M', secured to the shaft M². The said shaft L' receives rotary motion through the transverse shaft H' and the pinions H² and L², and transmits its motion to the shaft M² through the media of the pinion M' and the worm M. Said shaft M² is provided at one end with a bevel-gear, N, and is mounted in the bearing N', pivoted to a hanger extending from the lower plate of the frame N², as more clearly shown in Fig. 9. This shaft is flexibly connected to the shaft B by means of the pivoted section B³.

The letter O indicates a vertical shaft journaled in the frame N², terminating in a crank, O', at its lower end, and provided with a bevel-pinion, O², and an arm, P, the said pinion O² engaging with the pinion N, from which latter it receives rotary motion, which motion by the shaft O causes the arm P to engage the sliding head P', and to force it in the direction indi-

cated by the arrow, the return movement of the said head being effected by the contraction of a spiral spring, R⁴, secured at one end to the head and at the other to the upright which is attached to the frame N².

The letter P' indicates a sliding head adapted to travel in suitable ways, formed in the upper and lower plates of the frame N², and to engage one end of a reciprocating rod, P². This rod is suitably journaled in an upright secured to the edges of the frame N², and is provided with a stop, Q, which limits the forward stroke of the rod, and the other end thereof is bent to embrace a reciprocating rod, Q², and to engage a stop, Q', on the said reciprocating rod, the object of which engagement is to cause the movement of the rod P², caused by the action of the sliding head P', to retract the reciprocating rod Q², whereby the pawl R² is disengaged from the recess in the dog S', as will more fully appear.

The letter R refers to a lever pivoted to the stud R³, extending from the upright secured to the frame N². To this lever, near its upper end, is flexibly connected a pitman, R', suitably journaled in the upright before mentioned, and connected with the sliding head P', the lower end of said lever being adapted to engage a collar on the rod Q². By this means it will be observed that when the sliding head P' is returned to its normal position by the action of the spiral spring just alluded to the rod Q² will be given a forward movement, and the detent R² made to enter the recess in the dog S', it having been withdrawn from said recess by the backward movement of the sliding head, the object of which operation will presently appear. The forward end of the rod Q² connects with a detent, R², pivoted to the casing S. This casing is preferably attached to the plate C. Within this casing S are adapted to slide a tripping-dog, S', and a two-arm sliding bolt, S². Beneath the dog S' is a spring, T, which serves to keep it and the bolt S² normally elevated, the former against the pawl R², and within the recess formed in the dog is another spiral spring, T', the lower end of which engages a stud projecting from the inner face of the sliding bolt S², whereby the said bolt is kept normally in its seat formed in the said sliding dog S'. This dog is also provided with an inclined stud, T², which, when the dog is forced down, thrusts the pivoted pawl U from beneath the lower end of the bolt S², the pawl being normally held in place by a spring, U', thus admitting of the quick descent of the said bolt after its engagement with a tooth of the wheel K². The function and purpose of the said bolt S², it will thus be observed, is to actuate the register mechanism, its arm s being extended in the opposite direction to that in which the register-case J travels, so as to present an obstruction which shall engage with the lower tooth of the wheel K² as the latter comes in contact therewith.

The letter U^2 indicates a rod which is supported in the hanger V, extending from the bottom of the car, and which is provided with lugs V' , adapted to engage with the crank O' , so that the arm P may be returned by hand to the starting-point. This rod may be provided with a hand-lever or other means for operating it. Should the tripping-dog and the bolt be sprung after the register has passed them, and should the train stop before the register shall have made a revolution and passed over the said spring-dog and bolt, the register is continued through the circle by hand in order to make it engage with said spring-dog and bolt before it is taken off.

The operation of our invention will be readily understood when taken in connection with the above, and is as follows: When the train is put in motion, to the system of gearing hereinbefore alluded to is imparted a rotating movement, and the register-casing made to revolve around the plates C. This operation is continued as long as the car is in motion, and when the weight of a passenger is brought upon the seat the pinion M' , through the rod B, is made to engage the worm M, from which it receives rotation. This causes the bevel-pinion N to revolve the like pinion, O, and consequently to bring the arm P in contact with the sliding head P' , by which, through the action of the reciprocating rods P^2 and Q^2 , the pawl R^2 is withdrawn from the recess in the tripping-dog S' , and the latter and the bolt S^2 allowed to ascend through a slot in the plate C, so as to cause the arm s of the said bolt S^2 to engage with the lower tooth of the wheel K^2 , whereby the register mechanism is actuated. After the said wheel K^2 has passed beyond the point of engagement with the arm s the lug L comes in contact with the inclined side of the tripping-dog S' , and, the said lug being unyielding, thereby forces the tripping-dog S' downward, causing the lug T, formed on the said dog, to thrust the pawl U from beneath the lower end of the bolt S^2 , whereby the said bolt, by the expansive force of the spring T, is caused to quickly descend. The pivoted detent R^2 by this time has dropped into the recess formed in the side of the tripping-dog, whereby the devices are held in the position indicated in Fig. 4 until the arm P has again come in contact with the sliding head P' , which, through the action of the rod P^2 and the rod Q^2 , acts to withdraw the said detent and allow of an upward thrust of the tripping-dog and the bolt, ready for a second engagement with the tooth K^2 , this operation being repeated as often as the casing J passes over the said dog and bolt. When the lowest tooth of the wheel K^2 comes in contact with the arm s of the bolt, this shaft K' gives the register-wheel K a slight turn, which causes the register mechanism to register.

It will thus be seen that as long as the seat remains depressed a continual registering of the distance which the passenger rides will be

effected, the register being arranged to indicate a half, a quarter, or a full mile, or any fraction thereof which may be desired, each time the wheel K^2 engages the bolt S^2 . After the arm P has forced the sliding head P' in the direction of the arrow and has passed said head, the spiral spring R^1 causes the head to make its return-stroke, whereby the pitman R' is forced forward, and the lever R, engaging with the collar on the rod Q^2 , acts to return the detent R^2 into the recess formed in the dog S' , the said dog having by this time, through the action above described, been forced downwardly to the position seen in Fig. 4.

It is to be observed that in carrying out our invention it is necessary to supply each seat with the rotating shaft, the sliding head, and the reciprocating rods, a dog and bolt, and the several intermediate devices which co-operate therewith, but one stationary plate, one register, and the devices which cause the latter to rotate being necessary.

It is to be observed that when the train has reached the end of its route, the aggregate of the distance traveled by all the passengers will be indicated by the register, and by a comparison of such aggregate with the tickets in hand any discrepancy will be ascertained. It is also to be observed that the sliding head P' is kept in a state of constant reciprocation as long as a passenger occupies a seat, while the rotation of the register-casing is continuous and independent of the movements of the said sliding head, the bolt S^2 being prevented from engaging the wheel K^2 during the intervals that the passenger is not in his seat by means of the detent R^2 engaging the recess in the dog S' , from which it is not released until the passenger again takes his seat.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, in an automatic register, of the yielding seat and the rotating shaft connected thereto, the vertical shaft and its arm, the sliding head, which is operated by said arm in one direction and returned by a spring, the reciprocating rods, and the tripping-dog and bolt, with a rotating register-casing carrying a series of register-wheels, and an intermittently-rotating shaft having a toothed wheel, the said wheel being engaged by the said bolt, and means for rotating the register-casing, substantially as described.

2. The combination, with an automatic register, of a yielding seat, the shaft journaled in a pivoted bearing, the vertical shaft receiving rotation therefrom and provided with an arm, with a sliding head, the yielding dog and bolt, and the means for connecting the head with the dog, substantially as shown.

3. The combination, in an automatic register, of a fixed plate provided with a rotating shaft having a pinion, and the registering devices carried thereby, with a transverse shaft having a worm and a pinion, and receiving mo-

tion from one of the supporting-axles of the car, whereby the register-casing is given rotary motion, substantially as described.

4. In an automatic register, the combination of the fixed plate having a vertical shaft, and the rotating register-casing, and mechanism to operate the same, with the sliding dog and bolt, adapted to engage the registering-wheels, and mechanism for operating the same, substantially as shown.

In testimony whereof we affix our signatures in presence of two witnesses.

J. R. TROTT.
JAMES W. McELVAIN.

Witnesses:

J. J. MCCARTHY,
H. J. ENNIS.