R. SHIPMAN.

SPEED AND RUNNING TIME INDICATOR.

APPLICATION FILED NOV. 1, 1912.

1,195,930.

Patented Aug. 22, 1916.

4 SHEETS—SHEET 1.

Fig. 1.

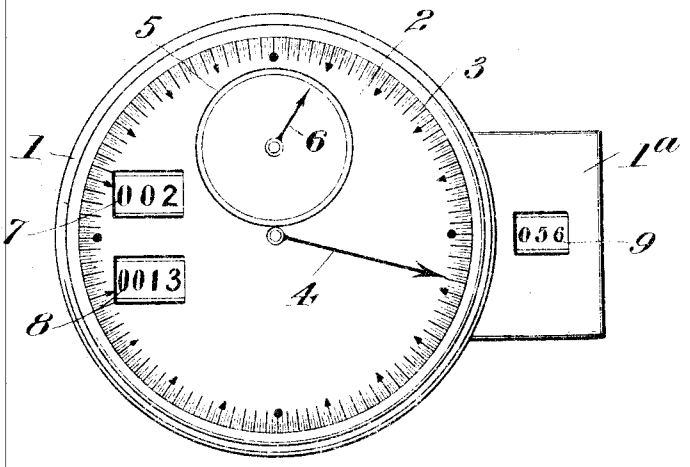
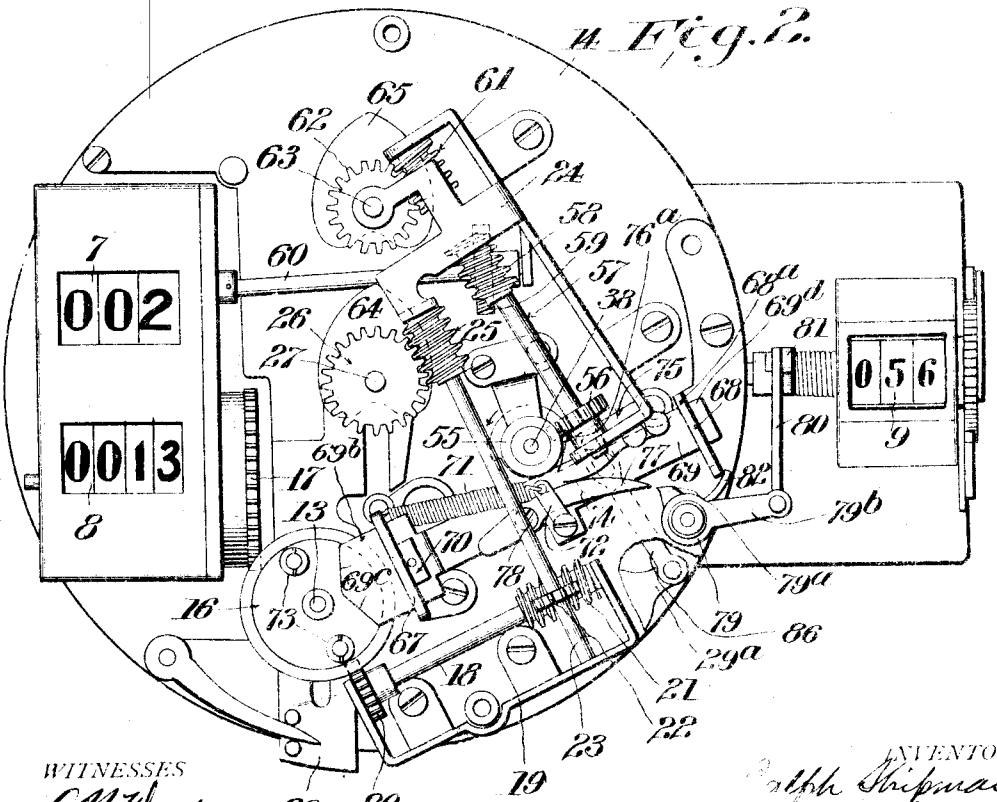


Fig. 2.



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4 SHEETS—SHEET 2.

Fig. 3.

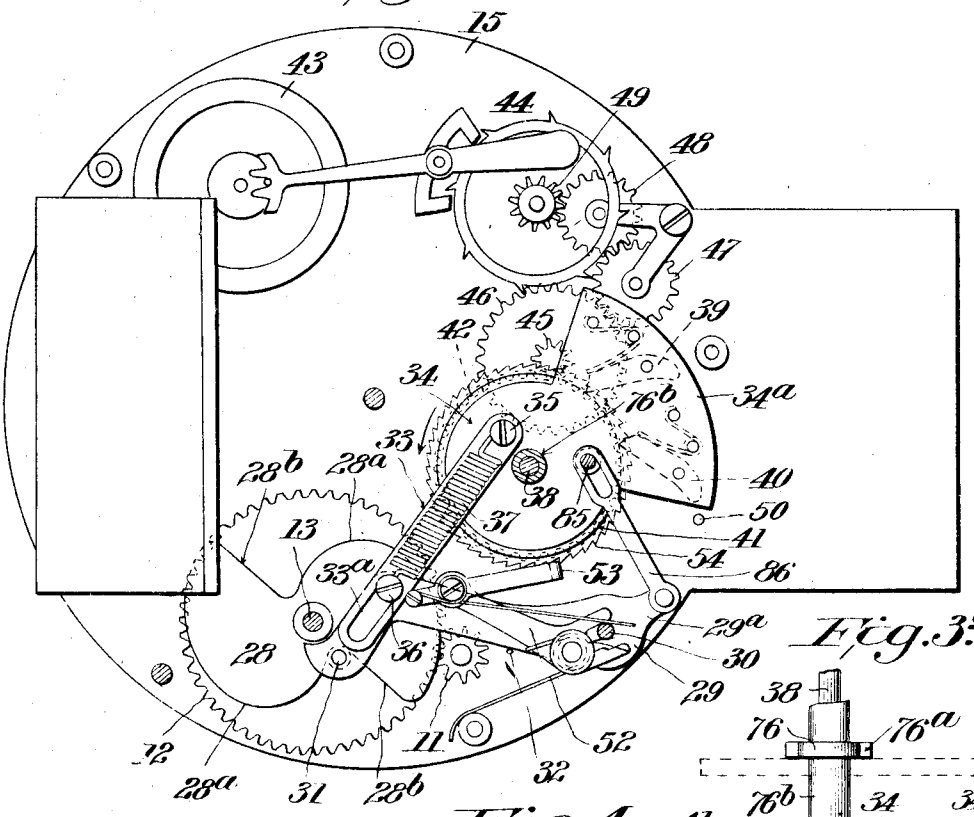


Fig. 3a.

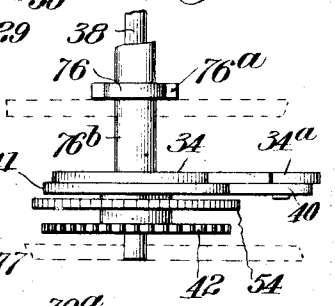
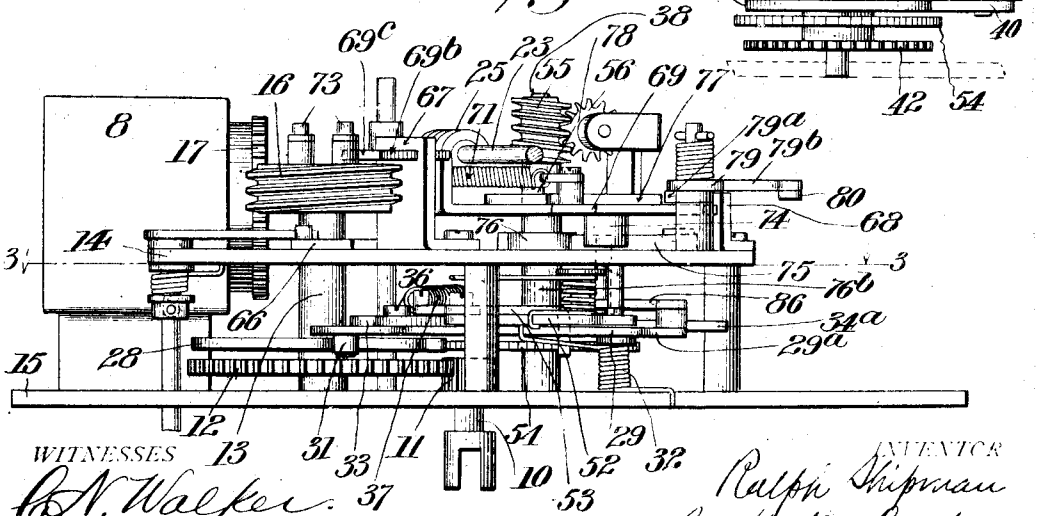


Fig. 4.



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4 SHEETS—SHEET 3.

Fig. 5.

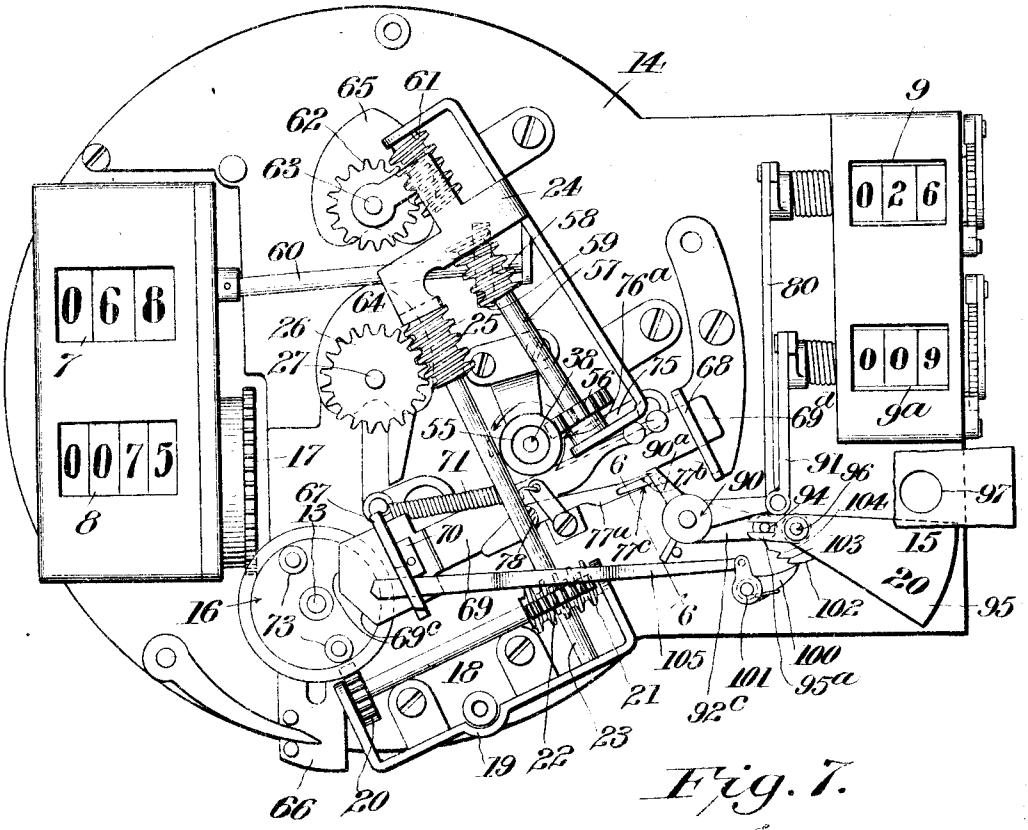


Fig. 7.

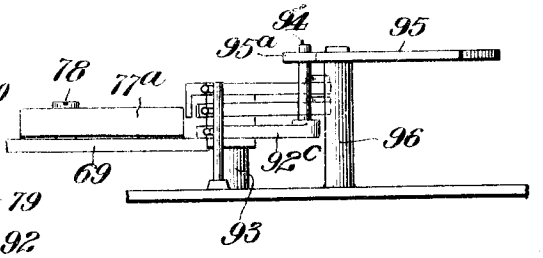
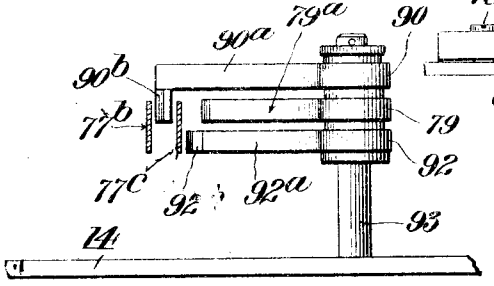


Fig. 6.



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4 SHEETS—SHEET 4.

Fig. 8.

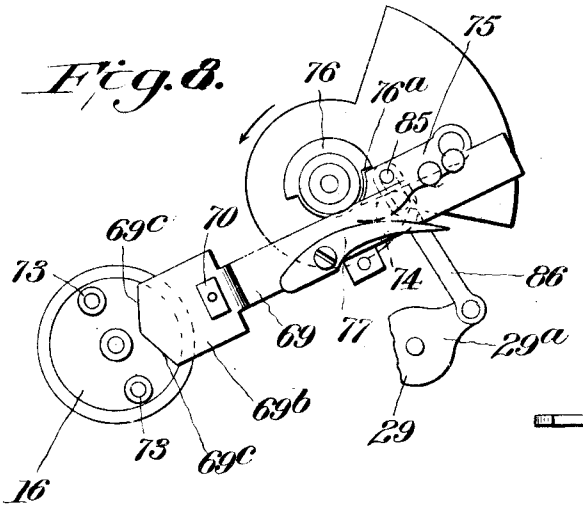


Fig. 8a.

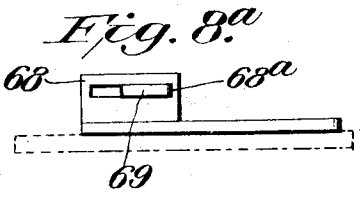


Fig. 9.

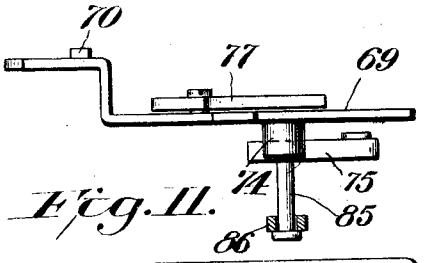


Fig. 10.

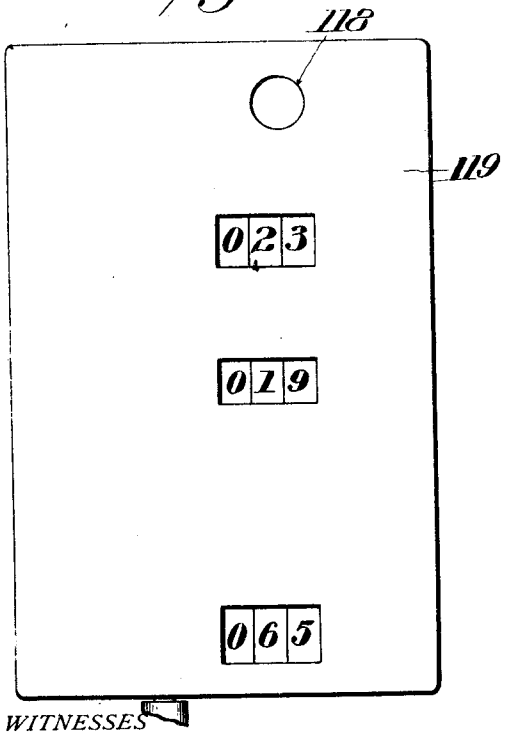
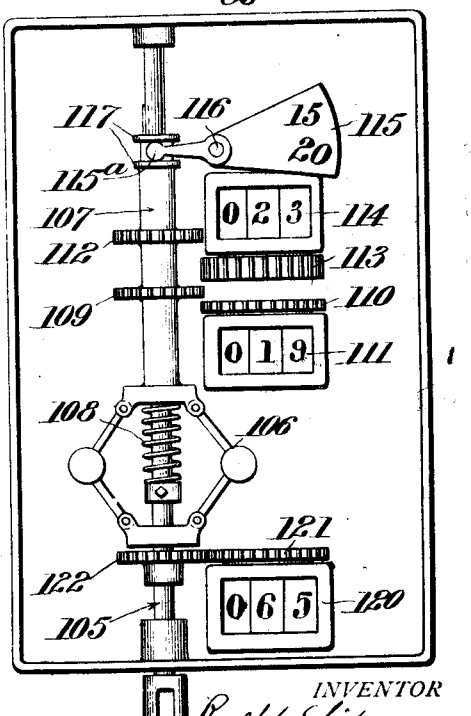


Fig. 11.



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UNITED STATES PATENT OFFICE.

RALPH SHIPMAN, OF SUNBURY, PENNSYLVANIA.

SPEED AND RUNNING-TIME INDICATOR.

1,195,930. Specification of Letters Patent. Patented Aug. 22, 1916.

Application filed November 1, 1912. Serial No. 729,033.

To all whom it may concern:

Be it known that I, RALPH SHIPMAN, a citizen of the United States, residing at Sunbury, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in Speed and Running-Time Indicators, of which the following is a specification.

In my prior patents, Re-is. 13,196 and No. 1,022,801, I have shown an instrument for registering the running time of a vehicle,—that is, the time the vehicle is in actual operation or motion during any given trip or period of time, as well as the speed at any time that the machine is in operation. The running time feature of the instrument is very desirable for enabling the owners of trucks and delivery wagons to keep advised as to the hours of service of each individual machine, and also as to the hours that the employees are actually engaged in operating the machine. Thus, if an employee is given an hour to make a twelve mile trip, including a short stop, and his instructions are not to exceed fifteen miles per hour, he may make a stop of half an hour and drive the machine at thirty miles per hour and return within the appointed time. The instrument referred to will, however, show that the machine has been in actual operation for only half an hour, and hence that the employee has made a long stop during the trip and has raced the vehicle to make up for the lost time.

The invention of the present application embodies the running time feature of the prior patents referred to, together with means for registering the distance traveled by the vehicle when driven in excess of a given speed, and means for signaling the driver when his vehicle is traveling at a speed in excess of such given speed.

The invention is particularly desirable on trucks and delivery vehicles which are not intended for high speeds and which are injuriously affected when driven fast.

In the accompanying drawing, Figure 1 is a top plan view of the indicator, inclosed in its casing; Fig. 2 is a similar view, on an enlarged scale, with the casing and dial removed; Fig. 3 is a section on the line 3—3 of Fig. 4; Fig. 3ª is a side view of parts on the shaft 38; Fig. 4 is a side elevation of the indicating mechanism, some of the parts being omitted and the casing being removed; Fig. 5 is a top plan view of the indicator mechanism, similar to Fig. 2, but showing an additional excess-speed register and a signaling device for indicating when the speed of the vehicle is approaching the speed limit; Fig. 6 is a section on the line 6—6 of Fig. 5, showing details of the mechanism for operating the excess-speed registers and the signaling device; Fig. 7 is a side elevation of the mechanism for operating the excess-speed registers and the signaling device, looking from the front in Fig. 5; Fig. 8 is a plan view of the slide and pawl, as shown in Fig. 2, for operating the excess-speed register, together with the mechanism for reciprocating the slide and giving the same a lateral motion; Fig. 8ª is an end view of the slide and the rear guide; Fig. 9 is a side view of the slide and pawl thereon; Fig. 10 is a front view of a casing for inclosing a centrifugally operated indicator mechanism which is shown in elevation in Fig. 11, said mechanism being adapted to register the distance traveled at excess speeds and to actuate a signaling device as well as to register distance.

Figs. 1 to 4, inclusive, and Figs. 8 and 9, show indicator mechanism arranged for operating only one excess-speed register, while Figs. 5, 6, and 7 show additional mechanism for operating an additional excess-speed indicator and a signaling device.

Referring to Figs. 1 to 4 and 8 and 9, inclusive, 1 indicates the casing of the indicator within which is arranged a dial 2, having a peripheral scale 3 upon which the distance traveled during a trip of the vehicle is indicated by a hand or pointer 4, and 5 indicates a scale upon which the actual running time of the vehicle during the trip is indicated by a hand or pointer 6. A register 7, visible through an opening in the dial plate, registers the total running time of the vehicle, and a register 8 registers the total distance traveled by the vehicle. The casing is provided with a lateral extension 1ª within which is arranged a register 9 which operates only when the vehicle exceeds a predetermined limit, and registers the distance traveled at any speed above the predetermined limit.

The entire mechanism is actuated by a driving spindle 10 which, when the instrument is applied to a vehicle is connected by a flexible shaft to a tappet mechanism op-

erated by the movement of one of the vehicle wheels, the flexible shaft and tappet not being shown in the drawing. Each rotation of the vehicle wheel causes a partial rotation of the spindle 10. This spindle carries a pinion 11 which meshes with a gear 12, secured to a shaft 13 which is suitably journaled in the upper and lower supporting plates 14 and 15 of the instrument. The shaft 13 will make one complete revolution each time the vehicle travels a given distance, and, in practice, the tappet mechanism and gearing are arranged to rotate the shaft 13 once for every one hundred and seventy-six feet of travel of the vehicle, which equals one-thirtieth of a mile. The shaft 13 will therefore make thirty revolutions in one mile of travel of the vehicle. The shaft 13 carries at its upper end a worm gear 16 and a properly proportioned spur gear 17 meshes with this worm gear and operates the register 8 to register the total distance traveled.

A shaft 18, mounted in a suitable bracket 19 upon the upper supporting plate, carries a pinion 20 which meshes with the worm gear 16, and this shaft carries a worm 21 which meshes with a spur pinion 22 upon a shaft 23 which is arranged at right angles to the shaft 18 and is mounted in the bracket 19 and a bracket 24. A worm 25 on the shaft 23 engages a gear 26 secured to a spindle 27 which carries the distance indicating hand 4. It will be evident that through the gearing just described, the hand 4 will be operated, and this hand will indicate, on the scale 3, the distance traveled during any given trip.

The hand 6 is operated to indicate the actual running time of the vehicle upon the scale 5 by a clock mechanism actuated by a cam wheel 28 upon the shaft 13. This cam wheel, as shown in the drawing, comprises two snail cams having cam surfaces 28ª which rise gradually from points near to and at opposite sides of the shaft and terminate in abrupt radial faces 28ᵇ. A lever 29, mounted upon a spindle 30, carries at its free end a roller 31 which is adapted to bear against the edge of the cam wheel 28, and this roller is constantly pressed against the cam wheel by a spring 32, so that as the cam wheel rotates the lever 29 will rock back and forth twice during each revolution of the cam wheel. A link 33 extends between the lever 29 and a clutch member 34, associated with the clock train. The link is pivotally connected by a screw 35 to the clutch member, and a screw 36, extending through a longitudinal slot 33ª, connects the link with the lever 29. A helical spring 37 connected between screws 35 and 36, constitutes the main spring for actuating the clock mechanism. The clutch member 34 comprises a disk, loosely mounted on a shaft 38, and provided with an extension 34ª, upon the under side of which two dogs or pawls 39 and 40 are mounted. These dogs are of hardened steel and their free ends are sharp and engage the periphery of a disk 41 of softer metal, such as brass which is mounted concentrically with the clutch member 34, upon the shaft 38. The periphery of the disk 41 is preferably smooth, and the pawls 39 and 40 are arranged at such angles that they will wedge against the disk and give it a positive rotation when the clutch member is turned in one direction and the pawls will, of course, slide freely on the disk when the clutch member is turned in the opposite direction. The periphery of the disk 41, instead of being smooth, may be provided with a great many fine teeth set closely together. The member 34, with its attached pawls, and the disk 41, constitute a clutch, the member 34 being the driving member of the clutch and the disk 41 being the driven member. Upon the member 34, and rigidly connected with the driven member 41 of the clutch, is arranged a gear 42 which constitutes the main driving gear of the clock train. The clock train comprises a balance wheel 43, escapement mechanism 44 and a train of gears 45, 46, 47, 48, and 49 between the escapement wheel and the main gear 42.

It will be evident that the rotation of the driving cam wheel 28 will cause the lever 29 to rock back and forth and that the main spring 37 will be put under tension as the roller on the lever rides on to the higher portion of one of the driving cams. This will cause the clutch member 34 to turn in the direction of the arrow, Fig. 3, and the dogs 39 and 40, on said member, engaging clutch member 41 which is connected with the clock train, will set the latter in motion, and as the roller 31 on the lever 29 slides down the radial face of one of the cams, the screw or stud 36 will engage the rear end of the slot 33ª in the link 33 and move the link backward, thereby causing the clutch member 34 to be re-set in its original position against a stop 50. The continued rotation of the cam wheel 28 will again cause the lever 29 to move and stretch the main spring 37 and the clutch member 34 will move, with the clock train, away from the stop 50 and power will be applied through said clutch member to the clock train, until the roller on the arm 29 reaches the radial face at the end of the cam, when, as before, the clutch member 34 will be re-set in its initial position against the stop. Thus, as long as the vehicle keps in motion, the clock train will be driven, but as the main spring 37 is relaxed at each half rotation of the cam wheel and is never stretched to any considerable extent, the clock mechanism will stop substantially when the vehicle, and the cam

wheel driven thereby, stops. As the main spring 37 is wholly relaxed twice during each revolution of the cam wheel at the times when the roller 31 is at the lowest points on the cam wheel, it is desirable to apply auxiliary power to the clock train while the roller is passing these low points and while the main spring is relaxed. This is accomplished by means fully described in my prior Patent No. 1,022,801, and unnecessary to describe in detail here, these auxiliary driving devices comprising a spring pressed lever 52, mounted upon the lever 29, and carrying a spring pressed pawl 53 which engages a ratchet wheel 54, the latter being rotatable with the clutch member 41, associated with the clock train.

The shaft 38, which is actuated by the clock train, rotates once in two minutes. Upon the upper end of this shaft is mounted a worm gear 55 which is engaged by a spur gear 56 upon a shaft 57, mounted in the bracket 24, and upon this shaft is arranged a worm 58 which engages a gear 59 upon a shaft 60 which leads to and operates the register 7 for registering the total running time of the vehicle. Another worm 61 is mounted upon the shaft 57 and this worm engages a gear 62 upon a shaft or spindle 63, to which the indicating hand 6 is attached, and this hand indicates upon the scale 5 the runing time of the vehicle for any given trip, or the trip-hours.

Upon the spindles 27 and 63 are mounted heart-shaped cams 64 and 65 and a re-setting slide 66 is suitably formed and arranged to actuate these cams and thereby turn the indicator hands 4 and 6 to zero on the scales, when the slide is operated. It is unnecessary to describe in detail the construction and operation of this slide as equivalent means for re-setting indicator hands is well known in the art.

The main feature of the present invention is the means for indicating and registering distance traveled at speeds in excess of a given speed which will now be described.

Upon the upper supporting plate 14 of the instrument are arranged guides 67 and 68, having slots to receive a slide 69, the slot in the guide 68 being considerably wider than the slide to permit lateral movement of the slide. The slide is provided with a stop 70 adapted to abut against the guide 67, and the slide is normally held with the stop against said guide by a spring 71 attached to the guide and to an arm 72, secured to the slide. This spring is at an angle to the center line of the slide and therefore tends to hold the end portion 69^a of the slide against the end portion 68^a of the guide 68. The end portion 69^b of the slide, which may be termed the forward end portion, projects over the worm wheel 16 and into the path of movement of two tappets 73 which are arranged at diametrically opposite points on said wheel. The center line of the slide is radial to the axis of the wheel 16 and the end of the slide which is adapted to be engaged by the tappets is beveled in opposite directions from the center, as shown at 69^c, to provide cam surfaces so that each time a tappet passes the end of the slide, the latter will be moved rearwardly by the tappet and it will then be drawn forwardly by the spring 71 to its normal position. Each time the vehicle moves a given distance, say one-sixtieth of a mile, this backward and forward movement of the slide takes place. The slide has, on its under side, a roller 74 which normally rests against one side of a pawl 75, pivoted to the plate 14, and the free end of this pawl projects into the path of movement of a shoulder 76^a upon a disk 76, which latter is secured to the clutch member 34 of the time mechanism by a sleeve 76^b surrounding the shaft 38. Hence, when the vehicle is in motion, the disk 76 and its shoulder 76^a will rotate in the direction of the arrow with the clutch member 34, and with the time mechanism, while the main spring is pulling the said mechanism and this disk, and this shoulder will be re-set in an initial position each time the clutch member 34 is re-set in its initial position at the completion of each unit of distance traveled by the vehicle. When the shoulder 76^a is moved to its initial position, it moves the pawl or movable guide 75, which, in turn, bearing against the roller 74 on the slide, moves the slide away from the end 68^a of the guide 68. This lateral movement of the slide by the time controlled shoulder 76^a occurs about the time the slide has reached its rearward limit of movement. The slide carries a dog 77 pivoted to the slide at 78 and adapted to engage one arm 79^a of a bell crank lever 79 when the slide is held a sufficient distance away from the end 68^a of the slot in the guide 68, during the backward travel of the slide. The arm 79^b of the bell crank lever is connected by a link 80 to a crank arm 81 connected to the register 9. A suitable spring 82 holds the arm 79^a of the bell crank lever normally in position to be engaged by the dog 77 when the slide is held a sufficient distance away from the end 68^a of the slot in the guide 68, and each time the bell crank lever is engaged and rocked, the register 9 is actuated to register a fraction of a mile, as one-sixtieth.

The parts are so arranged that one of the tappets 73 will engage one of the inclined surfaces 69^c at about the time when the roller 31 on the arm 29 is at the highest point of one of the cam surfaces 28^a on the cam wheel 28, and as the slide reaches its rearmost limit of movement, the roller

31 travels down the radial surface 28b of one of the cams on the cam wheel 28, and the clutch member 34 and disk 76 are re-set in their initial positions, the shoulder 76a on the disk moving the rear end of the slide laterally so as to carry the spring pawl or dog 77 out beyond the projecting arm 79a of the bell crank lever. The slide then moves forward, the pawl 77 slipping past the arm 79a, and at the commencement of this forward movement, the time controlled shoulder 76a commences to move with the time mechanism and to allow slide 69 to swing toward the end 68a of the slot 68. If the movement of the vehicle is in excess of a given speed for which the parts are set, say twenty miles an hour, the slide will move forward and will be pushed rearward again by one of the tappets before the shoulder 76a has been carried far enough around by the time mechanism to allow the pawl 77 on the guide 69 to move out of the path of the arm 79a on the bell crank lever, and hence, the pawl will engage said arm during the rearward movement of the slide, causing the arm to rock and operate the register 9. If, however, the vehicle is moving at a rate lower than the predetermined limit of twenty miles, the shoulder 76a will move far enough from its initial position during the forward and back movement of the slide to allow the latter to carry the pawl 77 out of line with the arm 79a, and hence the pawl will pass the arm without causing an operation of the register 9. From this it will be evident that whenever the vehicle exceeds a predetermined speed, the register 9 will operate to record the distance traveled at its excess speed, and so long as the vehicle travels at less than this predetermined speed, the register 9 will not be operated.

In order that the pawl 75, which is used simply as a guide for the roller 74 on the under side of the slide, may not press on the shoulder 76a after the latter has started to move with the time mechanism, the guide 75 may be connected by a pin 85 and slotted link 86 to an arm 29a on the lever 29. As this lever rocks when the time mechanism is re-set and then is slowly moved by the cam wheel 28, the link may be used to support the guide 75 during a part of the movement of the slide after the time mechanism has moved a certain distance from its initial position.

In the figures above described, only one excess-speed register is shown; but I may employ several to register distance traveled at different excess speeds as illustrated in Figs. 5 to 7, inclusive. In Fig. 5, the mechanism is substantially the same as in Fig. 2, except that the pawl 77 in Fig. 2 is arranged to engage a single bell crank, while in Fig. 5 the pawl 77a which is mounted upon and travels with the slide 69, has a forked end adapted to engage bell cranks for operating two registers, 9 and 9a. The forked ends 77b and 77c of the pawl, at low speeds, travel in paths at one side of the arm 79a of the bell crank 79 and straddle a projection 90b on an arm 90a of a bell crank 90. The bell crank 79 operates the register 9 and the bell crank 90, through a link 91 operates the register 9a. Another bell crank 92 is mounted upon a stud 93 which supports all of the bell cranks and the bell crank 92 has one arm 92a, somewhat longer than the arm 79a of the bell crank 79 and shorter than the arm 90a of the bell crank 90. This bell crank 92 has an arm 92c to which is attached a pin 94, fitting into a slotted arm 95a of a signal plate 95 which is pivoted upon a suitable post 96. This signal is hidden by the casing when in the position shown in Fig. 5, but when the bell crank 92 is rocked, one part marked "15" in the drawing will show through an opening 97 in the casing, and when the bell crank 92 is rocked further, another part of the signal plate, marked "20" will show through said opening.

It has previously been explained in connection with Figs. 1—4, and Figs. 8—9, inclusive, that the longitudinal movement of the slide 69 is controlled by the speed of the vehicle, while its lateral swinging movement, toward the axis of the disk 76, is controlled by the time mechanism. To repeat, briefly, the spring 71 constantly tends to move the slide forward, or longitudinally, toward the axis of the gear 16, on which the tappets 73 are mounted, and also to swing the slide laterally toward the axis of the disk 76, its rear end having room to play in a slot in the guide 68, as shown in Fig. 8a, and being normally pulled by its spring toward the side 68a of said slot. When the slide, moved by one of the tappets 73, is in its rearmost position, the clutch member 34, and the disk 76, which is secured to said member, are turned backward on the time mechanism by the operation of the cam disk 28, and in this resetting movement, which occurs at fixed distances of travel of the machine, the shoulder 76a of the disk 76, swings the slide away from the axis of said disk. The slide is then moved forward by its spring and again moved rearward by a succeeding tappet, and during this forward and backward movement the slide slowly swings laterally toward the axis of the disk 76, as permitted by the movement of the shoulder 76a, with the time mechanism. As the lateral movement of the slide is constant, while its longitudinal movement varies according to the speed of the vehicle, it is evident that if the speed is great, the pawl 77, which is mounted on the slide, will move rearwardly therewith in a path farther from the axis of the disk 76 than if the speed is slow, and that it will follow inter-

mediate paths at intermediate speeds. To set up on the register 9^a the distance traveled at speeds of fifteen miles and not over twenty miles per hour, and on the register 9 the distance traveled at speeds of twenty or more miles per hour, without registering speeds under fifteen miles per hour, the arms 90^a and 79^a of the bell cranks which operate the registers will be of such lengths and so related to the paths of movement of the pawl 77^a on the slide 69 that when the vehicle is moving at a speed below fifteen miles per hour, the pawl will not engage either bell crank, and neither register will be operated. When moving at fifteen miles, the pawl will engage in its rearward movement the bell crank 90^a but not the bell crank 79^a, and when the vehicle is moving at twenty miles or over, the pawl will engage, in its rearward movement, the bell crank 79^a but not the bell crank 90^a. When the vehicle is moving at any speed below fifteen miles per hour, the pawl will not engage the arm 92^a, and when moving at fifteen miles or over, the pawl will engage the latter arm and cause the movement of the signal 95.

In Fig. 6, the forks 77^b and 77^c of the pawl are shown in the position which they occupy relatively to the bell cranks at a speed below fifteen miles per hour. At these low speeds, it will be noted that the forks of the pawl straddle the downward projection 90^b on the arm 90^a, and both of said forks are at the left of the bell crank 79^a and 92^a, and therefore none of the bell cranks will be operated in this position of the pawl. At fifteen miles per hour, and less than twenty miles, the forks of the pawl will travel in a path to the right of that indicated in Fig. 6, so that the fork 77^b will engage the downward projection 90^b on the arm 90^a and operate the register 9^a. The fork 77^c will, at the same time, engage the end of the arm 92^a and this will cause the signal 95 to be swung up so as to expose the numeral 15 thereon through the opening 97. At this speed, however, the fork 77^c will pass the end of the arm 79^a and the register 9 will not be operated. Upon increase in speed to twenty miles or more per hour, the fork will travel in a path farther to the right in Fig. 6, and the arm 77^c will then engage the bell crank 79^a and operate the register 9, and it will also engage the arm 92^a and move the signal 95 to expose the numeral 20 through the opening 97; but in this last assumed position of the pawl, the fork 77^b thereof will travel in a path at the right of the projection 90^b on the arm 90^a, and the latter will therefore not be moved, and hence, the register 9^a will not be operated. The signal, when operated, serves the purpose of calling the driver's attention to the fact that he is running at a speed above his limit.

In order to keep the signal plate in front of the opening 79 as long as the speed is excessive, a locking pawl 100 is pivoted upon a stud 101 on the supporting plate 14, and this pawl is spring pressed toward a segment 102, which is connected to the signal plate and is provided with notches 103 and 104 for engagement with the locking pawl. A tripping rod 105, connected to an arm of this pawl, extends through an opening in the guide piece 67, into the path of the tappets 73 on the wheel 16. If the signal plate has been thrown up to expose the numeral "15", through the opening 97, the pawl 100 engages the notch 103 and the signal plate is thereby held with the numeral "15" exposed through the opening. If the speed continues at fifteen miles an hour, the engagement of one of the tappets 73 with the tripping arm 105 will not release the signal plate because at that moment the forked arm 77^c of the pawl 77^a will be in engagement with the low part or off-set portion 92^b of the bell crank 92, but if the speed falls below fifteen miles, then as the slide 69 reciprocates, the forked arm 77^c of the pawl 77^a will not engage the bell crank 92 and the tappet 73 will cause the tripping arm to release the locking pawl, thus allowing the signal plate to fall to normal position. Similarly, if the speed equals or exceeds twenty miles per hour, the bell cranks 79 and 92 will be simultaneously operated, as before explained, and the signal plate will be thrown up to expose the number "20" through the opening 97 by the operation of the bell crank 92, and the pawl 100 will engage the notch 104, in the disk 102, and lock the signal plate in position with the numeral "20" exposed through the opening 97. This will not be changed as long as the speed equals or exceeds twenty miles per hour, as at such speeds the bell crank 92 will always be engaged by the forked arm 77^c at the moment when the tripping arm 105 is operated, and when this arm is released, the pawl 100 will still be in engagement with the notch 104. If the speed now falls below twenty miles and not below fifteen, the arm 77^c of the pawl 77^a will engage the low part of the bell crank 92, and when the tripping arm or rod 105 is operated the pawl 100 will be released from the notch 104, and the signal plate will drop and said pawl will engage the notch 103 and hold the slide with the numeral "15" exposed through the opening 97. But if the speed drops below fifteen miles per hour, the forked pawl will not engage any of the bell cranks and at the next operation of the tripping rod 105, the pawl 100 will be released from the notches in the disk 102 and the signal plate will drop below the opening 97.

In Figs. 10 and 11, I have shown a cen-

trifugally operated indicator for indicating and registering distance traveled at excess speeds. In these views the shaft 105 is driven by a speed proportional to the speed of the vehicle and carries a centrifugal governor 106 which operates to pull downward a sleeve 107 on the shaft 105, against the action of a spring 108, as the speed increases. A gear 109 upon this sleeve is adapted to engage a gear 110 upon a register 111 when the speed equals a given limit, as say fifteen miles per hour. These gears will remain in mesh as long as the speed of the vehicle continues at fifteen miles per hour, or any speed above fifteen and less than twenty miles per hour. Should the vehicle speed equal or exceed twenty miles per hour, another gear 112 on the sleeve 107 will be brought into mesh with a gear 113 upon a register 114, and the latter will register the distance traveled at a speed of twenty miles per hour or at any greater speed. The teeth on the gear 113 are long enough to permit the gear 112, after its first engagement, to remain in mesh therewith, while the latter gear is carried to its downward limit of movement by the operation of the governor, so that for all speeds above twenty miles per hour, the gear 112 will drive the gear 113 and operate the register 114. It will be evident that as the speed drops below twenty miles per hour, the sleeve will move upward, carrying the gear 112 out of engagement with the gear 113, and carrying the gear 109 into engagement with the gear 110, and the register 111 will be operated by the gears 109 and 110 until the speed drops below fifteen miles per hour, when the gear 109 will pass out of engagement with the gear 110, and below a speed of fifteen miles per hour, neither of the registers will be operated. A signal plate or arm 115 is pivoted to the casing at 116 and has an arm 115[a] which extends between collars 117 on the sleeve 107, the arrangement being such that when the vehicle is operating at speeds varying from fifteen to twenty miles per hour, the signal arm will be rocked into position to expose the numeral "15" thereon through the opening 118 in the front wall 119 of the casing, and if the speed equals or exceeds twenty miles per hour, the numeral "20" will be exposed through said opening. If the speed is below fifteen miles per hour, the signal arm will remain below the opening in the casing. A distance register or odometer 120 is shown in the lower part of the casing, and it is connected by gears 121 and 122 to the shaft 105, this register being continually operated while the vehicle is in motion to register the total distance traveled.

What I claim is:

1. A mechanism for indicating the distance traveled by a vehicle in excess of a given speed, comprising a member operating at a speed proportional to the speed of the vehicle, a register, and means controlled by said member for actuating the register only when the machine exceeds the given speed, to register distance traveled by the vehicle in excess of said given speed.

2. A mechanism for indicating the distance traveled by a machine in excess of a given speed comprising a member operating at a speed proportional to the speed of the machine, a time mechanism operated by said member, a register, means associated with the register for actuating the same, and a device, movable by said member and controlled in its position by said time mechanism, adapted to operatively engage said means when the speed of the machine exceeds a given speed.

3. A mechanism for indicating the distance traveled by a machine in excess of a given speed comprising a member operated by the machine, a time mechanism, a register, means associated with the register for actuating the same, and a device for engaging said means adapted to be operated by said member once for each unit of distance traveled by the machine, said device being controlled in its position with respect to said means by said time mechanism.

4. A mechanism for indicating the distance traveled by a machine in excess of a given speed comprising a member operated by the machine, a time mechanism, a register, means associated with the register for actuating the same, and a slide for engaging said means adapted to be operated by said member once for each unit of distance traveled by the machine, said slide being controlled in its position with respect to said means by said time mechanism.

5. A mechanism for indicating the distance traveled by a machine in excess of a given speed comprising a member operated by the machine, a register, a device associated with the register for operating the same, a slide having means for operating the register and adapted to be reciprocated by said member once for each unit of distance traveled, and time mechanism for varying the path of movement of said means with respect to said device.

6. A mechanism for indicating the distance traveled by a machine in excess of a given speed comprising a member operated by the machine, a register, a device associated with the register for operating the same, a slide having means for operating the register and adapted to be reciprocated by said member once for each unit of distance traveled, and time mechanism operated by the machine for varying the path of movement of said means with respect to said device.

7. A mechanism for indicating the dis-

tance traveled by a machine in excess of a given speed comprising a member operated by the machine, a register, a device associated with the register for operating the same, a slide having means for operating the register and adapted to be reciprocated by said member once for each unit of distance traveled, said slide being movable laterally, and time mechanism for controlling the lateral movement of the slide.

8. A machine for indicating the distance traveled by a machine in excess of a given speed comprising a register a pawl for operating the register and means for reciprocating the pawl once for each unit of distance traveled, a time mechanism, a clutch member for actuating the time mechanism and movable therewith, means for setting said clutch member in an initial position each time the machine moves unit distance, and means movable with the clutch member for varying the path of movement of said pawl.

9. A machine for indicating the distance traveled by a machine in excess of a given speed comprising a register a slide for operating the register and means for reciprocating the slide once for each unit of distance traveled, a time mechanism, a clutch member for actuating the time mechanism and movable therewith, means for setting said clutch member in an initial position each time the machine moves unit distance, and means movable with the clutch member for varying the path of movement of said slide.

10. A machine for indicating the distance traveled by a machine in excess of a given speed comprising a register a slide having a pawl thereon for operating the register and means for reciprocating the slide once for each unit of distance traveled, a time mechanism, a clutch member for actuating the time mechanism and movable therewith, means for setting said clutch member in an initial position each time the machine moves unit distance, and means movable with the clutch member for varying the path of movement of said pawl.

11. A mechanism for indicating the distance traveled by a machine in excess of a given speed comprising a register, a reciprocable and laterally movable device for operating the same, means for reciprocating said device each time the machine moves unit distance, a time controlled element for regulating the lateral movement of said device, and means for setting said element in an initial position each time the machine moves unit distance.

12. A mechanism for indicating the distance traveled by a machine in excess of a given speed, comprising a register, a slide for operating the register, means operated by the machine for reciprocating the slide once for each unit of distance traveled, a time mechanism, a clutch member for actuating the time mechanism and movable therewith, means for setting said clutch-member in an initial position each time the machine moves unit distance, and a device movable with the clutch member and adapted to move the slide laterally when the clutch member is moved to its initial position.

13. A mechanism for indicating the distance traveled by a machine in excess of a given speed, comprising a register, a slide for operating the register, means operated by the machine for reciprocating the slide once for each unit of distance traveled, a time mechanism, a clutch member for actuating the time mechanism and movable therewith, means for setting said clutch-member in an initial position each time the machine moves unit distance, a movable guide for the slide and a device movable with the clutch member adapted to move said guide when said clutch member is moved to its initial position.

14. A mechanism for indicating the distance traveled by a machine in excess of a given speed, comprising a register, a slide for operating the register, means operated by the machine for reciprocating the slide once for each unit of distance traveled, a time mechanism, a clutch member for actuating the time mechanism and movable therewith, means for setting said clutch-member in an initial position each time the machine moves unit distance, a movable guide for the slide, a device movable with the clutch-member adapted to move said guide when said clutch-member is moved to its initial position and means for holding the movable guide out of engagement with said device while the clutch-member is actuating the time mechanism.

In testimony whereof I have affixed my signature, in presence of two witnesses.

RALPH SHIPMAN.

Witnesses:

E. W. MARSHALL,

R. J. DEARBORN.