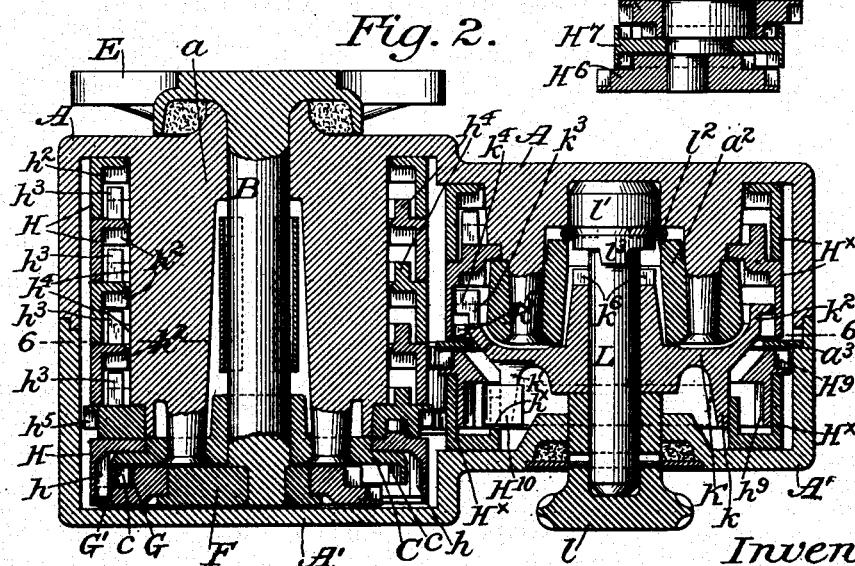
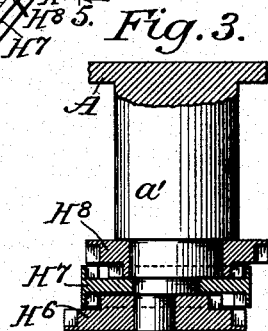
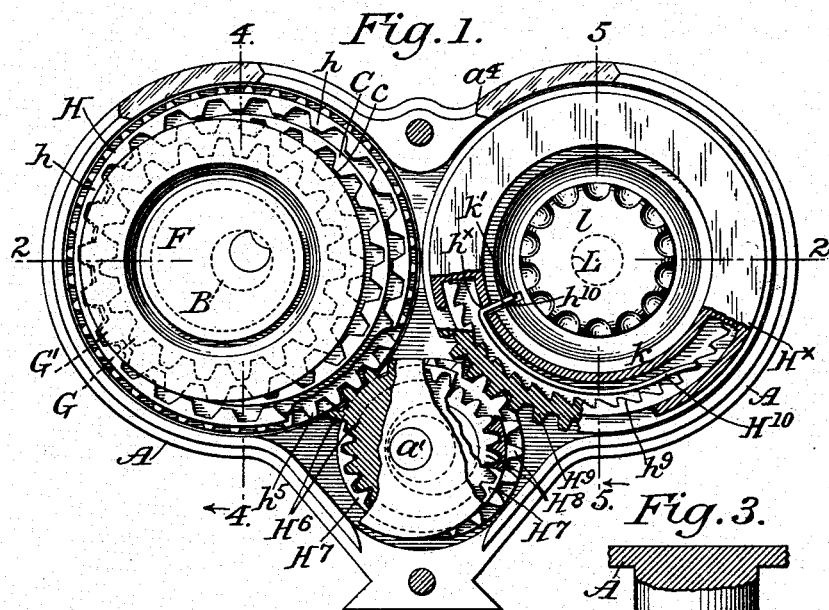


C. H. VEEDER.
REGISTER.

(Application filed Nov. 21, 1898.)

(No Model.)

3 Sheets—Sheet 1.



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A. H. Jester
J. M. Egbert

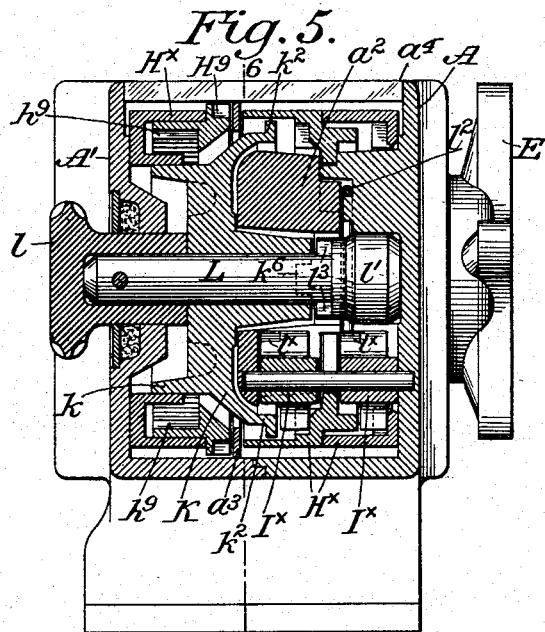
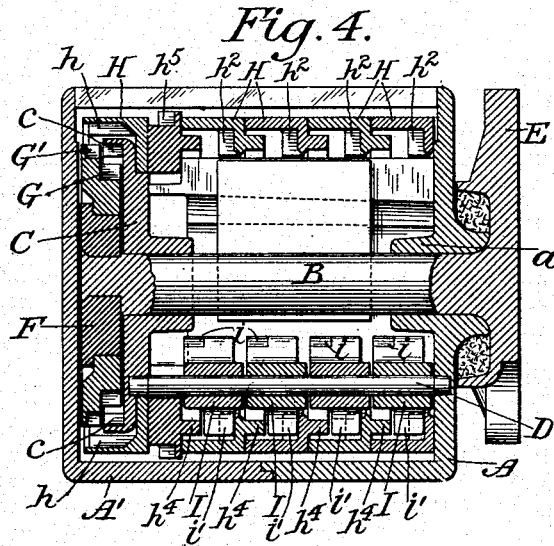
Inventor:
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C. H. VEEDER.
REGISTER.

(Application filed Nov. 21, 1898.)

(No Model.)

3 Sheets—Sheet 2.



Attest:
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F. H. Eggleston.

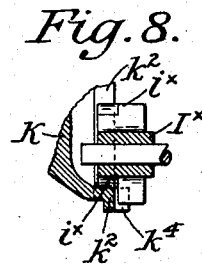
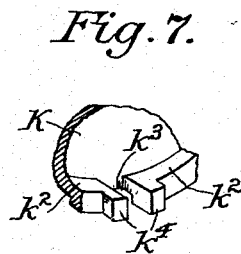
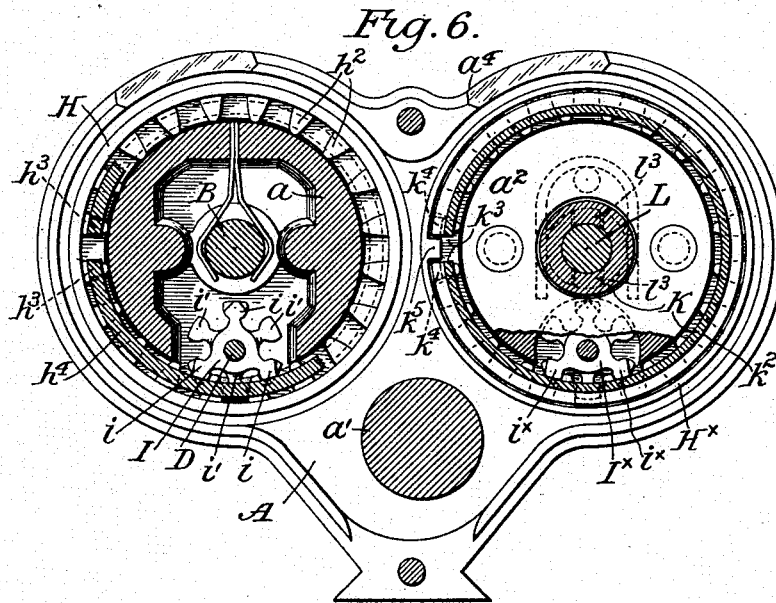
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REGISTER.

(Application filed Nov. 21, 1898.)

(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

CURTIS HUSSEY VEEDER, OF HARTFORD, CONNECTICUT, ASSIGNOR TO
THE VEEDER MANUFACTURING COMPANY, OF SAME PLACE.

REGISTER.

SPECIFICATION forming part of Letters Patent No. 676,519, dated June 18, 1901.

Application filed November 21, 1898. Serial No. 696,985. (No model.)

To all whom it may concern:

Be it known that I, CURTIS HUSSEY VEEDER, a citizen of the United States, residing in the city and county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Registers, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to the construction of registers—such as cyclometers, revolution-counters, and other indicators of like character—and is chiefly concerned with registers which comprise in their construction two series or sets of indicators or registering or indicating wheels or rings, one series or set being adapted to be set to zero or the initial point when commencing a new count or registration and the other series or set being adapted to record the total of successive counts or registrations.

The object particularly in view is to produce an instrument of this character which shall be specially adapted for recording the distance traveled by a bicycle or other vehicle, such instrument presenting two separate and distinct lines of figures, one line of figures showing the distance traveled in a single trip or ride and the other line of figures showing the total distance traveled in successive trips or rides. The indicators or index wheels or rings which show the distance traveled in a single trip are capable of being set to zero at the beginning of each new trip without disturbing the indicators or index wheels or rings which register the total distance traveled.

The improved register is so constructed and arranged that during operation the indicators or index wheels or rings of the trip-register, as well as of the totalizing-register, are driven positively and locked positively against accidental movement, while at the proper time the release of such index wheels or rings is easily effected and they are without difficulty reset to zero or the initial point. Provision is also made whereby two or more of the successive indicators or index wheels or rings can be rotated simultaneously during the resetting, thereby saving much time and trouble.

Although the improvements are shown and described herein as embodied in a cyclometer which comprises a trip-register and a totalizing-register, it will nevertheless be understood that some of the improvements are equally applicable to registers of any kind whether the same comprise one series of indicators or more than one series.

In the accompanying drawings, in which for the purposes of explanation the improvements are shown as embodied in a cyclometer of the character referred to, Figure 1 is a right-hand end elevation of the cyclometer with the cap removed and with some parts in section to illustrate details of construction. Fig. 2 is a horizontal section on the plane indicated by the line 2 2 of Fig. 1, the cap being in place. Fig. 3 is a detail view, partly in horizontal section, of the transmitting-gearing between the totalizing-register and the trip-register, the support therefor being shown. Fig. 4 is a vertical section on the plane indicated by the line 4 4 of Fig. 1 looking toward the left, the cap being in place. Fig. 5 is a vertical section on the plane indicated by the line 5 5 of Fig. 1, the cap being in place. Fig. 6 is a vertical section on the plane indicated by the line 6 6 of Figs. 2 and 5. Figs. 7 and 8 are detail views illustrating the relation of the locking and actuating ring with the locking and transmitting gear.

In the form of cyclometer chosen for illustration in the accompanying drawings the construction and arrangement of the main or totalizing register or registering mechanism are substantially the same as described in Letters Patent of the United States No. 548,482, dated October 22, 1895, to which reference may be had for a more detailed description than is necessary to be given herein. For convenience in such reference like letters of reference are used herein to indicate like parts in the two constructions so far as such parts are mentioned herein. The case A receives and supports the several working parts, substantially as described in said patent, being extended and so shaped as to receive and support also the trip mechanism and the transmitting mechanism between the totalizing-register and the trip-register. The cap A' in the present case completes the inclosure of the

working parts. The actuating-shaft B, having at its outer end the usual star-wheel E, passes centrally through the supporting-hub a , having a bearing at one end in said hub 5 and at the other end in a plate C, secured to the end of said hub a . An eccentric F on the inner end of the shaft B carries the two gears G and G', conveniently formed in one piece, one of which meshes with the internal 10 gear c formed in the plate C, while the other meshes with the internal gear h , formed on or carried by the first or right-hand indexing ring H, the said internal gear h having a number of teeth greater than the number of teeth 15 in the internal gear c , so that the index-ring H will be given a very slow revolution. The transmitting-gears I I may be mounted, as described in said patent, upon a pin D, having each a locking and actuating member or 20 pinion i at one end to be engaged by the locking-ring h^4 and at the end of each rotation by the driving-pin h^3 of the right-hand indexing ring; each of said transmitting-gears having at the other end a transmitting member or 25 pinion i' to engage the internal gear h^2 of the next index-ring to the left. This mechanism secures the proper advance of each index ring or wheel by one step as the next index ring or wheel to the right completes its rotation, meanwhile holding the left-hand indexing 30 ring positively locked against accidental movement, all as fully described and explained in the specification of the patent above referred to.

35 The trip-register, which is shown at the right hand in Figs. 1 and 2, is driven from the totalizing-register, the right-hand index rings or wheels of the two registers being operatively connected. It is obvious that these 40 two index-rings might be directly geared together; but for convenience in manufacture an intermediate transmitting mechanism is provided, as shown in the drawings. The right-hand (units or fractions) index-wheel 45 H of the totalizing-register carries a driving-gear h^5 , which for convenience is formed in a separate piece secured to the said index wheel or ring. This gear meshes with a double transmitting-gear H⁶, mounted eccentrically 50 upon a stud a' , projecting from the case A. The inner line of gear-teeth of this outer transmitting-gear H⁶ mesh with one side of a double internal intermediate transmitting-gear H⁷, with the other side of which meshes one 55 part of the inner double transmitting-gear H⁸, the intermediate transmitting-gear being mounted eccentrically upon the stud a' and the inner transmitting-gear H⁸ being mounted concentrically thereon. The other part of 60 the inner transmitting-gear H⁸ meshes with the driving-gear H⁹ of the trip-register. This arrangement of transmitting-gears permits the two driving-gears h^5 and H⁹ to be offset with respect to each other and at the same 65 time is very compact. The gear H⁹ is so connected with the first or right-hand index ring or wheel H^x as to drive the latter positively

and yet to permit the latter to be rotated in a forward direction independently of the driving-gear, and consequently without disturbing 70 the totalizing-register, the object being to permit the trip-register to be reset to zero without affecting the totalizing-register. For this purpose the gear H⁹ is provided with an internal ratchet h^9 , which is engaged by a 75 ratchet-spring H¹⁰. The other end of said spring enters a slot h^x in the hub of the index-ring H^x and extends inward beyond said hub, for a purpose presently to be described.

80 Motion is transmitted from the right-hand index wheel or ring of the trip-register to the next index wheel or ring through a positively-operating transmitting device, which also locks the next wheel or ring against accidental movement, substantially as in the totalizing- 85 ing-register already described; but provision is made for the release of the locking devices, so as to permit the next index wheel or ring to be rotated simultaneously with the right-hand wheel or ring in resetting the trip-reg- 90 ister to zero. This release of the locking mechanism might be effected in various ways; but that represented in the drawings and now to be described is most desirable on account of its simplicity, convenience, and certainty 95 in operation. An intermediate part, for convenience called hereinafter a "clutch-disk," (indicated at K,) is mounted within the casing, being supported upon the trip-shaft L, so as to be capable of longitudinal movement 100 and also of rotary movement therewith when the trip-register is being reset to zero, as hereinafter described. A flange k of the disk K furnishes a bearing for the hub of the right-hand index-ring H^x and is slotted, as at k' , 105 for engagement with the end h^{10} of the ratchet-spring H¹⁰ already referred to, which thus acts as a key or feather to lock together the said index-ring and the clutch-disk, so that they shall rotate as one, and also permits a longitudinal 110 movement of the clutch-disk with respect to the index wheel or ring. The said clutch-disk is also provided with a flange k^2 , which operates as an actuator and as a locking-ring for the transmitting-gear I^x, through which motion 115 is imparted to the next index wheel or ring. For this purpose said flange or locking-ring is cut out or slotted, as at k^3 , to permit the movement of the locking-pinion i^x of the transmitting-gear when the clutch-disk completes a rotation with the right-hand index 120 wheel or ring, the inner periphery of said locking-ring at other times (except when released) moving in contact with two adjacent teeth of said locking-pinion, and thereby 125 holding the same and the next index wheel or ring positively against accidental movement. Normally the clutch-disk is not in direct engagement with the next index wheel or ring; but it is adapted to be brought into 130 engagement with said index wheel or ring by a longitudinal movement. For this purpose the flange k^2 is formed with a slot and lugs, as at k^4 , to engage a pin or projection k^5 , car-

ried by the next index wheel or ring. The same longitudinal movement of the clutch-disk which effects its engagement with the next index wheel or ring also withdraws the flange or locking-ring k^2 from its bearing upon the teeth of the locking-pin I^x of the transmitting-gear I^x and so permits such index wheel or ring to be rotated freely, together with the right-hand index wheel or ring, which, as already described, is positively engaged with the clutch-disk.

The trip-shaft L, already referred to, is provided with a knurled knob l outside of the case, by which it can be moved longitudinally and rotated when it is desired to reset the trip-register to zero. At its inner end it is provided with a head l' , which is preferably beveled, as represented, and engaged by a retaining-spring l^2 , which offers sufficient resistance to the longitudinal movement of the shaft to prevent accidental displacement. The head is also formed with clutch-teeth l^3 to engage corresponding clutch-teeth k^6 on the end of the hub of the clutch-disk K. The head of the trip-shaft is guided and has a bearing in a stationary plate a^2 , secured, as a matter of convenience in manufacture, to the case A.

A separating-ring a^3 is seated within the inner end of the cap A' and serves to retain the parts in proper position and to prevent such frictional contact of the first or right-hand index-wheel with the next index-ring as might tend to move the latter with the former at other times than during the resetting of the trip-register to zero.

The operation of the cyclometer so far as concerns the totalizing-register and the transmitting-gearing for actuating the right-hand index wheel or ring of the trip-register has already been described sufficiently and will be understood without further explanation herein. When it is desired to reset the trip-register to zero, the knurled knob l is grasped and the trip-shaft L is pulled out until its clutch-teeth l^3 engage the clutch-teeth k^6 of the clutch-disk K. The shaft is then rotated in a forward direction, carrying with it the right-hand index wheel or ring H^x through the positive engagement between the clutch-disk and said index wheel or ring, which is effected by the end of the ratchet-spring H^{10} . The shaft is rotated until the right-hand index wheel or ring presents at the sight-opening a^4 in the case A the same character which is already presented at the sight-opening by the next index wheel or ring. This brings the slot k^4 of the clutch-disk into line with the clutch-pin k^5 of the next index wheel or ring. Before this relation is established it is impossible to move the clutch-disk longitudinally because of the bearing of the outside rim against the said clutch-pin k^5 ; but when this relation is established the trip-shaft L is pulled farther out, carrying with it the clutch-disk K, which, as already described, thus releases the locking mechanism of the next in-

dex wheel or ring and effects a direct engagement between said index wheel or ring and the clutch-disk. The first and second index wheels or rings can now be rotated together to reset them to the zero position. It is obvious that the third index wheel or ring might be released and operated in a similar manner; but as the mechanism required would be quite complicated it is preferable to effect the necessary rotation of the third index wheel or ring to reset it to zero by successive rotations of the first and second index wheels or rings together, particularly as the maximum number of rotations required in any case will not exceed twelve.

It will be evident that all of the moving parts of the register are operated positively and are locked positively against accidental movement, that springs are not relied upon for the actuation of any of the parts during operation, and that the positive locking devices of the trip-register are released to permit the resetting of the index wheels or rings to zero. As already indicated, the invention is not concerned directly with the particular construction of the registering devices, and other constructions may be employed in place of that shown. It will also be evident that various changes may be made in the construction shown, and particularly that the release of the positive locking devices may be effected in other ways than as shown and described herein, and that other means may be employed for driving the right-hand index wheel or ring of the trip-register positively from the right-hand index wheel or ring of the totalizing-register, while permitting it to be rotated independently thereof during the resetting of the trip-register.

I claim as my invention—

1. A register comprising a totalizing-register and a trip-register, means for driving the totalizing-register, a ring provided with internal and external gear-teeth mounted concentrically with the trip-register, said external gear meshing directly with the transmitting-gear operatively engaging the first index-wheel of the totalizing-register, and a ratchet operatively connected with the first index wheel or ring of the trip-register and engaging the internal gear-teeth on said ring to drive said index-wheel positively and permit independent forward movement thereof, substantially as shown and described.

2. A register comprising a totalizing-register and a trip-register, a gear connected with the first index wheel or ring of one of said registers, a gear connected with the first index wheel or ring of the other of said registers, and transmitting-gearing between said gears, said transmitting-gearing comprising an inner gear and an outer and intermediate gear mounted eccentrically with respect thereto, substantially as shown and described.

3. A cyclometer comprising a series of index wheels or rings, transmitting devices between successive index wheels or rings of the

series, a driven part mounted concentrically with and having a bearing within the first index wheel or ring and a ratchet connection between said driven part and the first index wheel or ring, substantially as shown and described.

4. A register comprising a totalizing-register and a trip-register, a gear connected with the first index wheel or ring of one of said registers, a gear connected with the first index wheel or ring of the other of said registers, and transmitting-gearing between said gears, said gearing comprising a double outer gear, a double internal intermediate gear, and a double inner gear, the outer and the intermediate gear being mounted eccentrically with respect to the inner gear, the outer gear meshing with the gear of one of said registers and with one side of the double intermediate gear, and the inner gear meshing with the gear of the other of said registers and with the other side of said intermediate gear, substantially as shown and described.

5. A register comprising a series of index wheels or rings, transmitting devices between successive index wheels or rings of the series, an external gear having a sleeve extended and having a bearing within the first index wheel or ring, internal ratchet-teeth formed in said sleeve, and a ratchet engaging said ratchet-teeth and connected with said first index wheel or ring, substantially as shown and described.

6. A register comprising a series of index wheels or rings, a transmitting-gear between each index wheel or ring and the next, said gear comprising a locking-pinion engaged by a locking-ring and actuator rotated with the preceding index wheel or ring but movable longitudinally with respect thereto, and a transmitting-pinion engaging a gear carried with the next index wheel or ring, and means to move said locking-ring longitudinally upon its axis to release said locking-pinion, substantially as shown and described.

7. A register comprising a series of index wheels or rings, a transmitting-gear between each index wheel or ring and the next, said

gear comprising a locking-pinion and a transmitting-pinion engaging the gear carried with the successive index wheel or ring, a locking-ring connected with the preceding index wheel or ring and movable longitudinally with respect thereto, said locking-ring normally engaging said locking-pinion and adapted to actuate the same, and adapted also to engage said successive index wheel or ring when moved longitudinally from its normal position, substantially as shown and described.

8. A register comprising a series of index wheels or rings, a longitudinally-movable shaft supported concentrically therewith, a clutch-disk mounted loosely upon said shaft and adapted to be engaged thereby when the latter is moved longitudinally, said clutch-disk being connected with the first of the index wheels or rings and having a locking-ring and actuator and adapted to engage the next wheel or ring, and a transmitting-gear having a locking-pinion to engage said locking-ring and actuator and a transmitting-pinion to engage the next index wheel or ring, substantially as shown and described.

9. A register comprising a series of index wheels or rings, a longitudinally-movable shaft supported concentrically therewith, a clutch-disk mounted loosely upon said shaft and adapted to be engaged thereby and having a locking-ring and actuator adapted to engage the next wheel or ring, a locking and transmitting gear between said locking-ring and the next index wheel or ring, a driver having ratchet-teeth, and a ratchet engaging said teeth and the first index wheel or ring, said first index wheel or ring and said clutch-disk being connected positively for rotation with freedom for independent longitudinal movement, substantially as shown and described.

This specification signed and witnessed this 17th day of November, A. D. 1898.

CURTIS HUSSEY VEEDER.

In presence of—

E. BARRIE SMITH,
H. W. LESTER.