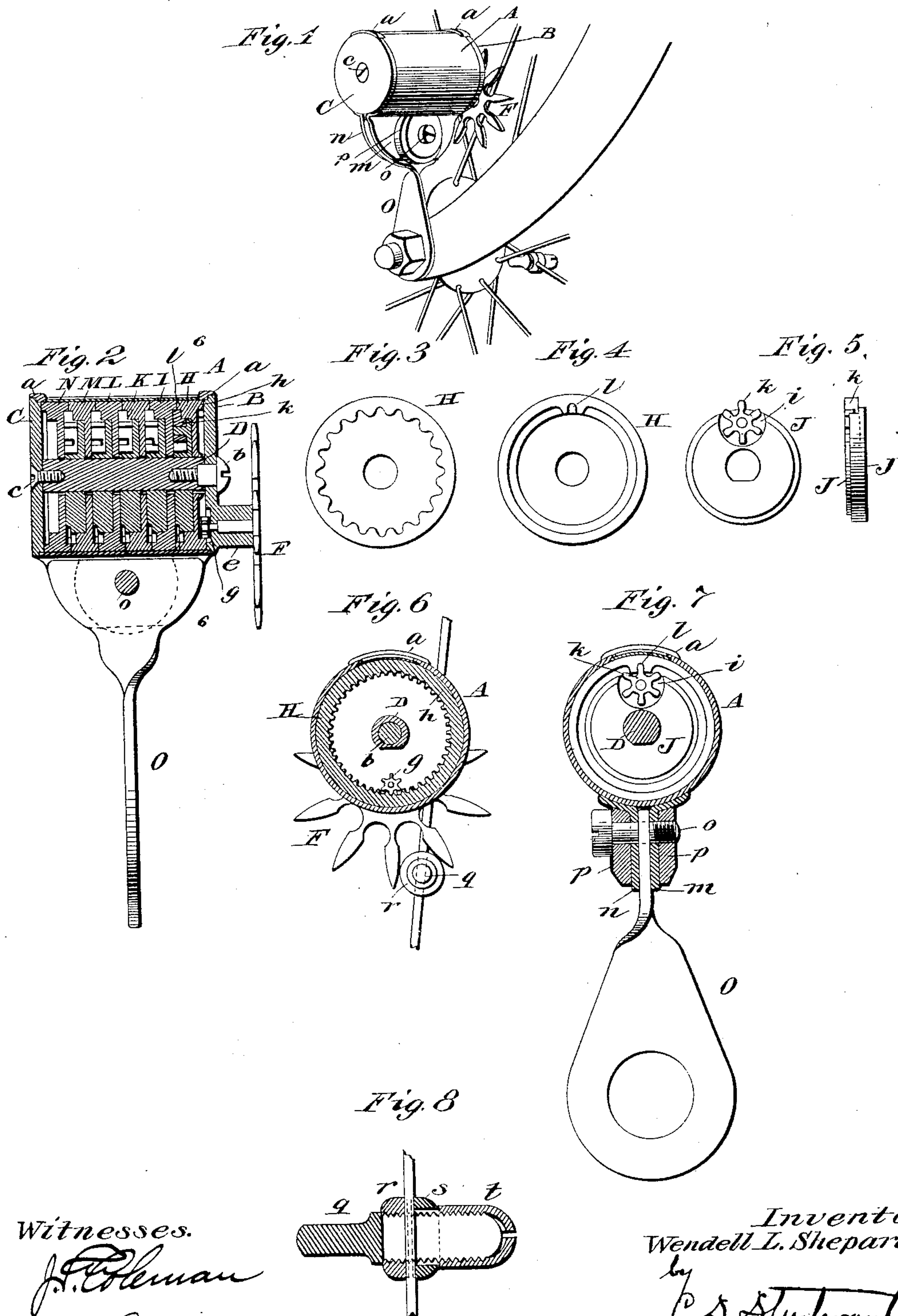


(No Model.)

W. L. SHEPARD.
CYCLOMETER.

No. 589,910.

Patented Sept. 14, 1897.



Witnesses.

J. F. Coleman
W. B. Conner

Inventor
Wendell L. Shepard

by
C. S. Sturtevant

Att'y.

UNITED STATES PATENT OFFICE.

WENDELL L. SHEPARD, OF WATERBURY, CONNECTICUT.

CYCLOMETER.

SPECIFICATION forming part of Letters Patent No. 589,910, dated September 14, 1897.

Application filed March 12, 1897. Serial No. 627,150. (No model.)

To all whom it may concern:

Be it known that I, WENDELL L. SHEPARD, a citizen of the United States, residing at Waterbury, in the county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Cyclometers, of which the following is a description, reference being had to the accompanying drawings and to the letters and figure of reference marked thereon.

My invention relates to an improvement in cyclometers, and particularly to the class known as "barrel-cyclometers," which are desirable over the other flat-disk cyclometers by reason of the fact that they take up so much less room.

The object of the invention is to provide, first, a simple and effective improved means for registering the number of miles up to ten thousand, or more, if desired, and, secondly, to provide an improved construction of supporting-framework for the operating parts.

The invention consists in the matters hereinafter described, and referred to in the appended claims.

In the accompanying drawings, which illustrate the invention, Figure 1 represents a perspective view of the entire device, showing it as attached to the axle of the front wheel of a bicycle. Fig. 2 is a sectional view through the barrel and numbering-disks. Fig. 3 is a plan view of one of said numbering-disks looking at it from one side. Fig. 4 is a similar view looking at the disk from the opposite side. Fig. 5 is a view of one of the washers with the pinion which it supports. Fig. 6 is a view showing the manner in which motion is imparted from the spoke to the first numbering-disk. Fig. 7 is a cross-section showing the means for attaching the cylinder or barrel of the cyclometer to its supporting-frame, and Fig. 8 is a detached view of the striker.

In the drawings, A represents the barrel or cylinder of the cyclometer, within which the operating parts are supported, this cylinder being provided with a slot covered over with glass, whereby the numbers may be read through the same. The ends of the cylinder are closed by means of caps B C, which fit snugly against the ends and underneath the flanges *a* and are secured in place by means of screws *b c*, which pass through the said

caps into the ends of an arbor D, to be hereinafter referred to.

One of the end caps B has attached to it a small sleeve or round lug *e*, and in this is journaled the hub of the star-wheel F, the inner end of said hub or pin upon which said star-wheel is attached passing through the said cap B and carrying on its inner end a small gear-wheel *g*. H represents the first numbering-disk, which is put in place upon the arbor D. This numbering-disk H is preferably marked to indicate the number of revolutions of the front wheel of the bicycle, each mark on said disk representing one of said revolutions. It is provided adjacent the cap B with an annular flange *h*, internally geared to mesh with the small gear *g*, which rotates with the star, so that as the star intermittently rotates one tooth at a time the disk H will do the same. Upon the opposite side the disk H is cut out to form a flange, which is provided with an internal gear *l*, formed with one or more teeth, or enough to rotate the next succeeding disk I one step. Within the recess formed by the flange of this disk H fits a washer, preferably of brass, the outer surface of which practically comes flush with the outer surface of the flange of the said disk. This washer J is cut out, as shown at *i*, and provided with a pin 1, upon which is journaled a small pinion *k*, which is adapted once in each revolution of the disk H to engage with the internal segmental gear *l* and rotate the pinion. This pinion is of sufficient thickness that not only do its teeth engage with the segmental gear *l*, but will engage the internal teeth on the succeeding disk I and thereby rotate said disk I.

The construction of the remaining disks K L M N is practically the same as H, except, of course, the outermost one, N, will not need to be provided with the washer.

The arbor D is flattened on one side, and the opening through the washers is also flattened to fit on said arbor and be held from rotation thereon, while the opening through the central part of the disks is round, allowing of their rotation.

It will be noticed by the peculiar construction of the flanges of the disks and the washers which fit within said flanges that the disks may fit very snugly together, no external washers being required between them, as is

very frequently the case. This construction of washer is as follows: It is provided with a cut-out portion for the reception of the pinion, as above referred to, and is of thickness about equal to the depth of the recess within the disk which contains it plus the thickness of the flange containing the internal row of teeth on the succeeding disk. Thus when the parts are put together the disks are enabled to fit very snugly, and alternate teeth of each small pinion are cut away slightly, as shown, to allow of their fitting snugly over the flange on the inner side of the disk by which it is driven. This pinion also, with its alternate teeth cut away, forms a two-point locking-bearing to prevent the rotation either way of the numeral-rings, except when the recessed segmental gear is in engagement with the pinion, when it will engage said pinion and rotate it, but at the other times said pinion is prevented from rotation, and therefore locks the numeral-rings, because the full-width teeth of said pinion bear under the ledge of the recesses on said numeral-rings or numbering-disks. This two-point locking device, while in construction and in its combination and arrangement differing slightly from that shown in Figs. 8 and 9 of the patent to Veeder, No. 548,482, is in action substantially the same and also similar to the action of the locking device shown particularly in Fig. 11 of the Davids patent, No. 375,804.

The inclosing casing of the cyclometer is formed of a cylindrical piece of metal having downwardly-projecting ears *m n* brazed to it, and between these ears is held, by means of a clamping-screw *o* and washers *p*, the upper end of a supporting-arm *O*, which at its lower end is provided with an opening to fit over the axle of the wheel and to be held thereon in the usual manner.

The striker is shown in Fig. 8 detached, and in Fig. 1 as applied to the spoke of a bicycle. It is formed of the pin *q*, having one end smoothed off to engage the star of the cyclometer without undue friction. It is provided with a split screw-shank, upon which is screwed one half of a clamp *r*. After this clamp *r* has been put in place the split portion of the screw is put over the spoke of the wheel, the sleeve or collar *s* is put in position, and then the said collar clamped on the nut *r* by means of the clamping-head *t*.

The striker or tappet herein shown and described is not claimed in the present application, but forms the subject-matter of an application filed by me on the 3d day of June, 1897, Serial No. 639,257.

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

1. A cyclometer comprising a series of numbering-disks, washers between the disks, a single pinion carried by each washer of width sufficient to be engaged and actuated by the preceding disk and to engage and actuate the succeeding disk, substantially as described.

2. A cyclometer comprising a series of numbering-disks, each having on one side a flange with internal teeth and on the other side a recess, the wall of which is provided with a segmental gear, washers fitting said recesses, and each carrying a single pinion of width sufficient to mesh with the segmental gear on the preceding disk and the internal gear on the succeeding disk; substantially as described.

3. A cyclometer comprising a star-wheel adapted to be engaged by a moving part of the vehicle, a pinion carried thereby, a numbering-disk having a flange with an internal gear, engaging said pinion, a washer fitting within a recess in the numbering-disk, a pinion carried by and rotatable on said washer, a second numbering-disk having a flange with an internal gear engaging the pinion and a segmental gear on the first disk also engaging and rotating said pinion; substantially as described.

4. A cyclometer comprising the inclosing casing having flanges, a central arbor, caps at each end secured to said arbor over which said flanges extend, and a series of numbering-disks rotatable on said arbor and a series of washers non-rotatable on said arbor, and carrying means for driving the disks; substantially as described.

5. A cyclometer having disks each with a recess on one side having segmental gearing, and a flange on the opposite side with a row of teeth and washers within said recesses, each washer carrying a pinion which engages the segmental gear of the preceding disk and the row of teeth of the succeeding disk, the washer being of such thickness as to allow of snug fit of the parts; substantially as described.

6. A cyclometer comprising a series of numbering-disks, washers between the disks, each having a recess and a pin within said recess, a pinion carried by each washer and supported on said pin within the recess, each pinion being engaged with and actuated by the preceding disk and engaging and actuating the succeeding disk, substantially as described.

7. A cyclometer having disks, each with a recess on one side having a segmental gear, a flange on the opposite side with a row of internal teeth, washers fitting within the recesses of the numbering-disks, each washer being provided with an annular recess, a pin, as 1, projecting from said washer within the recess and a pinion loosely supported on said pin and engaging the segmental gear of the preceding disk and the internal row of teeth of the succeeding disk, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WENDELL L. SHEPARD.

Witnesses:

WILSON H. PIERCE,
FRANCES ESTELLE MAIN.