(No Model.)

A. F. ROCKWELL.

REGISTERING MECHANISM FOR CYCLOMETERS.

No. 543,948. Patented Aug. 6, 1895.

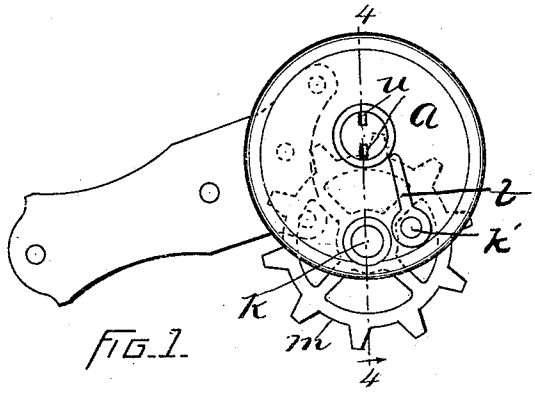

FIG. 1.

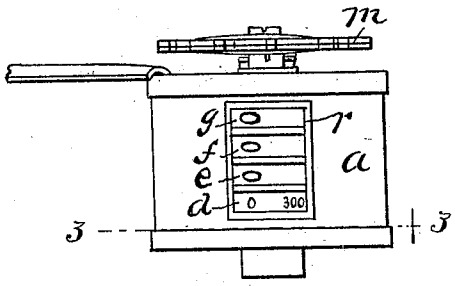

FIG. 2.

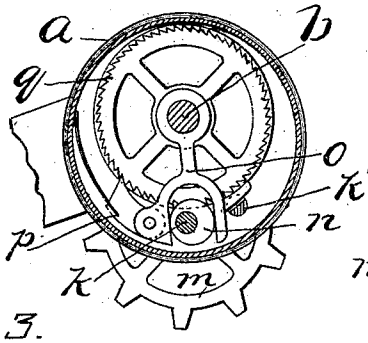

FIG. 3.

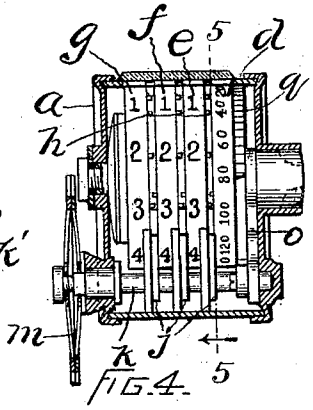

FIG. 4.

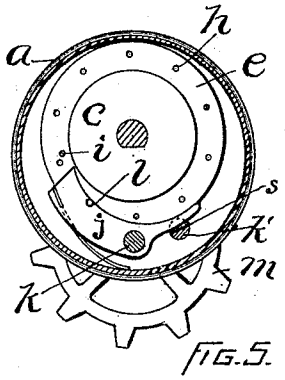

FIG. 5.

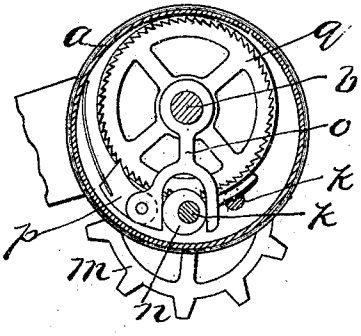

FIG. 6.

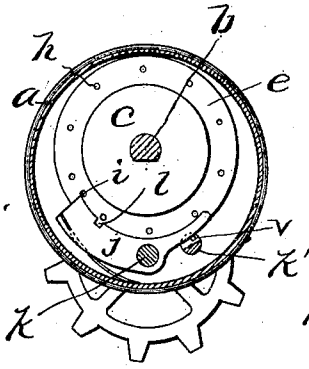

FIG. 7.

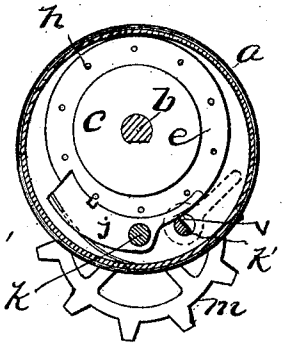

FIG. 8.

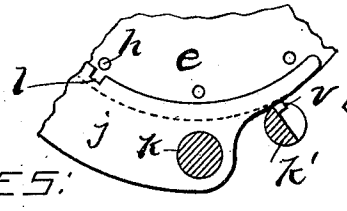

FIG. 9.

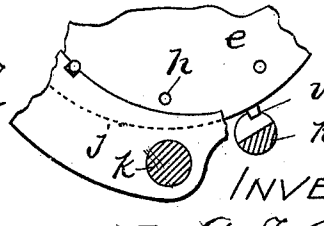

FIG. 10.

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UNITED STATES PATENT OFFICE.

ALBERT F. ROCKWELL, OF BRISTOL, CONNECTICUT.

REGISTERING MECHANISM FOR CYCLOMETERS.

SPECIFICATION forming part of Letters Patent No. 543,948, dated August 6, 1895.

Application filed June 14, 1894. Serial No. 514,546. (No model.)

To all whom it may concern:

Be it known that I, ALBERT F. ROCKWELL, of Bristol, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Cyclometers, of which the following is a specification.

This invention has relation to cyclometers generally, and particularly to that type or kind of cyclometers which are adapted for use on bicycles.

It is the object of the invention to provide a cyclometer which shall be at once simple in construction, certain in its mode of operation, easily and readily "set" or adjusted, and convenient of application or attachment, all as I will now proceed to describe in detail, and then point out with particularity in the appended claims.

Reference is to be had to the annexed drawings and to the letters and figures marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the drawings, Figure 1 is a side view of my improved cyclometer. Fig. 2 is a plan view of the same. Fig. 3 is a sectional view taken on the line 3 3 of Fig. 2, showing particularly the manner in which the first indicating-disk is operated. Fig. 4 is a sectional view taken on the line 4 4 of Fig. 1, the interior parts being represented in elevation. Fig. 5 is a sectional view taken on the line 5 5 of Fig. 4, showing the arrangement of the holding-pawls with reference to the indicating-disks and the manner of their operation. Fig. 6 is a sectional view similar to Fig. 3, but showing certain of the parts as in different position. Fig. 7 is a view similar to Fig. 5, but showing the holding-pawl as raised in order that a tenth-revolution may be imparted to its indicating-disk. Fig. 8 is a view similar to Fig. 5, but showing the holding-pawl as raised so that the indicating-disks may be set back to zero. Figs. 9 and 10 are detail sectional views designed to show the means whereby the indicating-disks may be set, and also whereby the setting means may be thrown out of action, so as not to interfere with the regular operation of the device.

In the drawings, *a* designates the casing, which may be of any suitable material and form, it being shown in the present instance as cylindrical, with a flat head on each end.

b designates a rotary shaft passing longitudinally through the cylindrical casing and having bearings in the ends thereof.

On the shaft *b*, between suitable frictional spacing-disks *c*, are arranged the indicating-disks *d e f g*, the disks *e f g* having numerals marked on their peripheries running from "0" to "9," and the disk *d* having numerals running by twenties from "0" to "300." On one side of each indicating-disk *e f g* there are arranged ten laterally-projecting pins *h*, spaced in accordance with the arrangement of the numerals on the said indicating-disks and projecting toward the pins *h*. From the sides of the adjacent disks *d e f* there is a single pin *i*. (Shown in section in Figs. 5 and 7.)

A spring-pressed pawl *j*, fulcrumed upon a shaft *k*, is provided for each disk *e f g* and has a notch *l* formed in its lower edge back from its point, so as to engage a pin *h* and hold the disk with which said pin is connected against turning.

The shaft *b* is flattened on one side, and the holes formed in the frictional spacing-disks are of corresponding form, so that the said disks cannot turn independent of the shaft *b*, though the holes formed through the indicating-disks *e*, *f*, and *g* are round, enabling them to turn on the said shaft independent of the latter while the disk *d* and its connected wheel *q* are rigid with the shaft.

On the outer end of the shaft *k* there is secured a wheel *m*, having ten teeth or projections on its periphery, regularly arranged and so constructed as to be engaged by a projection on a wheel of the bicycle or other vehicle or machine and be turned to the extent of one tooth at each of such engagements.

On the inner end of the shaft *k* there is secured an eccentric *n*, which works in the forked outer end of an arm or lever *o*, having a bearing at its inner end on the shaft *b*, and to the outer end of the said arm *o* there is pivoted a spring-pressed pawl *p*, which engages the teeth of a ratchet-wheel *q*, compounded with the indicating-disk *d* and rigid on shaft *b*.

It will now be seen that at each operation of the pawl *p* the ratchet-wheel *q* and its con-

nected disk *d* will be moved to the extent of one tooth of the said ratchet-wheel, and when the said disk *d* shall have made one complete revolution its pin *i* (whose path of travel is out of line with the pins *h*) will come in contact with the inner face of the pawl *j* and raise it out of engagement with its pin *h*, as shown in Fig. 7, so as to allow the indicating-disk *e* to move with the friction-disk *c* and be turned to the extent of the distance between two pins *h*, it being understood that after the pin *h* is passed from under the pawl *j* the latter will be forced inward by its spring into engagement with the next pin *h*, as shown in Fig. 5, and after the disk *e* has made a complete revolution its projecting pin *i* will act on the pawl *j*, controlling the disk *f*, and allow the latter to be moved to the extent of the distance between two pins *h*, as has been described with reference to the indicating-disk *e*, and the same operation will be repeated by the disk *f* and its projecting pin *i* upon the pawl controlling the disk *g* until the latter shall have made a complete revolution. As the disks *d e f g* are successively moved, as before described, the numerals on their peripheries will be brought to view through an aperture *r*, formed in the side of the casing, as is clearly represented in Fig. 2, so that, supposing the disk *d* to indicate rods, the disk *e* units of miles, the disk *f* tens of miles, and the disk *g* hundreds of miles, it will be clearly indicated at the end of a journey the exact number of miles and rods that the vehicle or wheel operating upon the wheel *m* will have traveled.

When it is desired to set all of the disks back to zero, the shaft *k'*, which is flattened or mutilated upon one side, as at *s*, will be turned by means of a lever *t*, connected with its outer end, and the said shaft will be made to operate upon the tails of the pawls *k*, as indicated in Fig. 9, raising all of the said pawls out of engagement with the pins *h*, and then by means of a key inserted in the apertures *u*, formed in the outer end of the shaft *b*, said shaft may be turned, turning all of the disks *d e f g* until the pins *v*, projecting radially from the peripheries of the disks *e f g*, will be brought into contact with the shaft *k'*, and so stop said disks at zero, as shown through the opening *r*. After all of the disks have been brought to zero, as described, the lever *t* may be turned inward, so as to allow the pins *v* to pass the shaft *k'*, as seen in Fig. 10.

It will be seen that it will require ten revolutions of the wheel of a bicycle or other vehicle or machine to move the pawl *k* so as to operate its ratchet-wheel *q* to the extent of one tooth, and therefore the ratchet-wheel and disk *d* will be moved quite slowly, and, furthermore, it will require ten revolutions of the disk *d* to move the disk *e* one-tenth of a revolution, and so on with respect to the disks *f* and *g*.

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all the modes of its use, it is declared that what is claimed is—

1. A cyclometer comprising in its construction a shaft, a series of alternating indicating and frictional spacing disks arranged on the said shaft, the former being constructed to turn on the shaft and the latter fixed thereto to turn only with the shaft, means for holding the indicating disks against turning, and means connected with said disks for releasing the holding means of the next adjacent disk at each revolution of the other disk, to permit a step movement of the said adjacent disk.

2. A cyclometer comprising in its construction a shaft, a series of alternating indicating and frictional spacing disks arranged on the said shaft, the former being constructed to turn on the shaft and the latter fixed thereto to turn only with the shaft, pawls for engaging means on the indicating disks to hold the same against turning, means connected with the said disks for acting upon the said pawls of the next adjacent disk to release the same and permit a step movement of the said adjacent disk.

3. A cyclometer comprising in its construction a shaft, a series of alternating indicating and frictional spacing disks arranged on the said shaft, the former being constructed to turn on the shaft and the latter fixed thereto to turn only with the shaft, a series of pins projecting laterally from the disks, holding pawls for engaging the said pins, a pin connected with the next adjacent disk for acting upon the pawl in its path of travel to release the pawl and allow the disk controlled thereby to have a step movement imparted to it.

4. A cyclometer comprising in its construction a shaft, a series of alternating indicating and frictional spacing disks arranged on the said shaft, the former being constructed to turn on the shaft and the latter fixed thereto to turn only with the shaft, an indicating disk, supplemental to those aforesaid, rigid on said shaft, means for imparting a step by step movement to said supplemental indicating disk, means connected with the indicating disks for imparting a step by step motion from one to another to indicate or register the number of revolutions of a wheel, and means for rotating the shaft and moving all of the indicating disks at the same time to move them back to zero.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 8th day of June, A. D. 1894.

ALBERT F. ROCKWELL.

Witnesses:
ARTHUR W. CROSSLEY,
CAROLYN C. STECHER.