

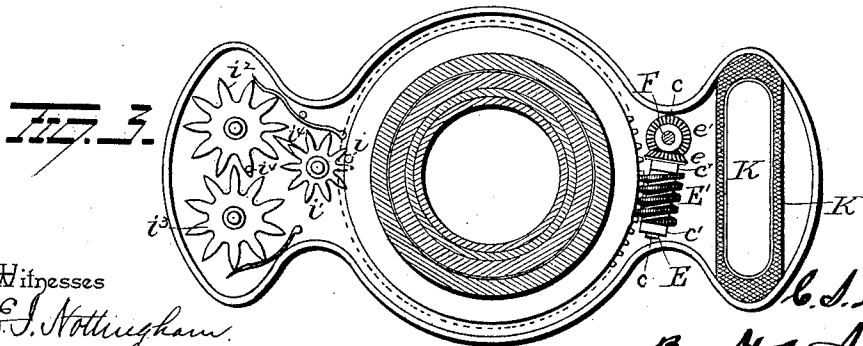
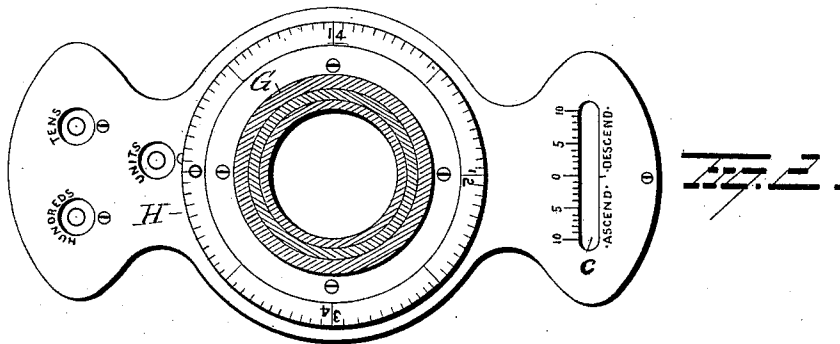
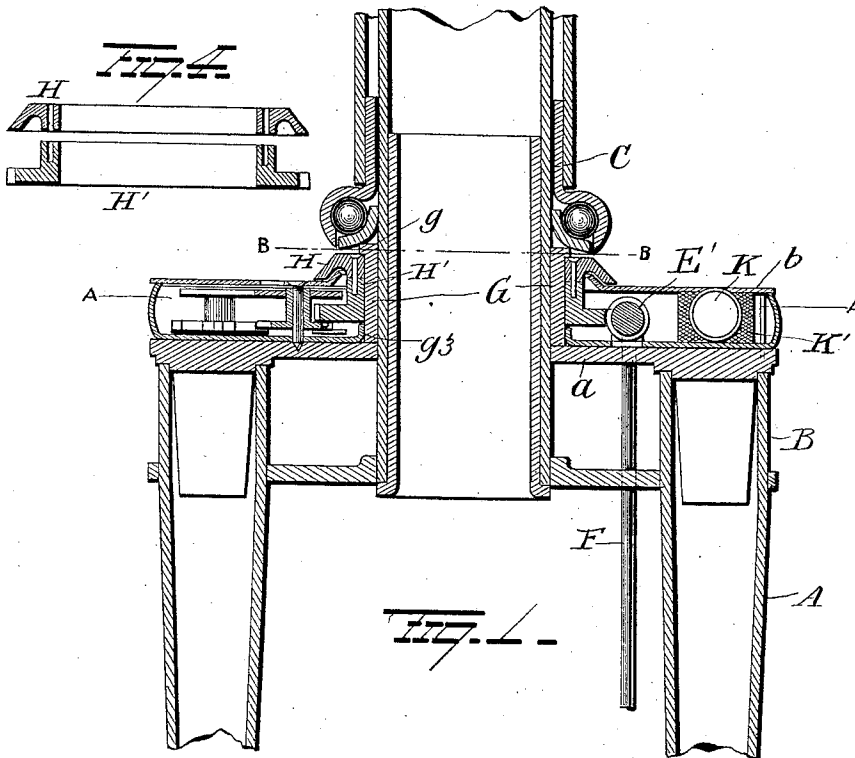
(No Model.)

2 Sheets—Sheet 1.

C. S. LABOFISH.
INDICATING DEVICE FOR BICYCLES.

No. 576,525.

Patented Feb. 2, 1897.



Witnesses

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G. F. Downing.

Inventor

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

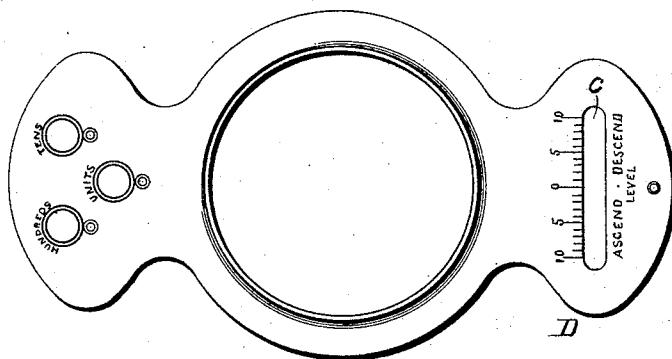


Fig. 6.

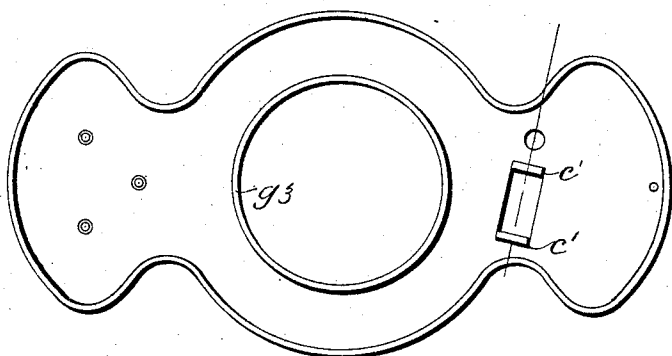
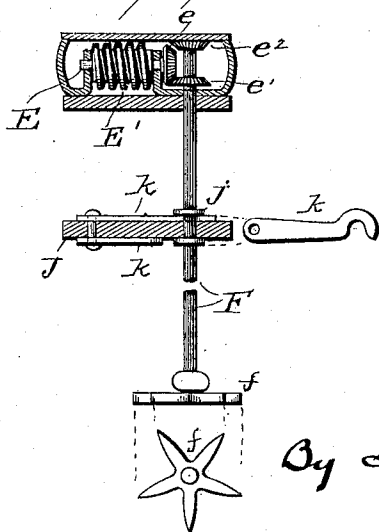


Fig. 7.



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UNITED STATES PATENT OFFICE

CHARLES S. LABOFISH, OF WILLIAMSPORT, PENNSYLVANIA, ASSIGNOR
TO CHARLES R. HARRIS, OF SAME PLACE.

INDICATING DEVICE FOR BICYCLES.

SPECIFICATION forming part of Letters Patent No. 576,525, dated February 2, 1897.

Application filed July 30, 1896. Serial No. 601,115. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. LABOFISH, a resident of Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Indicating Devices for Bicycles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in indicating devices for bicycles; and it consists in the parts and combinations of parts as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in vertical section through the fork-crown of a bicycle, showing my improvements applied thereto. Fig. 2 is a view in section on the line B B of Fig. 1. Fig. 3 is a similar view on the line A A of Fig. 1. Fig. 4 is a view in section of the graduated collar and worm-wheel. Fig. 5 is a view in plan of the case. Fig. 6 is a similar view with the cover removed, and Fig. 7 is a view in section on the line C C of Fig. 3.

A represents a portion of the front fork of a bicycle, B the crown thereof, and C vertical stem of steering-head. Secured on top of the upper deck *a* of the fork-crown B is the case D, which latter conforms in contour to the top of the crown, the sides and bottom of the case being preferably struck up from a single piece of sheet metal, while the top *b* thereof is made in a separate piece and is secured to the body of the case by riveting, brazing, or in any suitable manner. The top *b* is provided at one side with an elongated opening *c*, through which the air-bubble in the spirit-level can be seen, and adjacent to the openings are words, signs, or symbols indicating ascent and descent and with graduations showing the rise and fall in feet to a given distance, while the other side or end of the top *b* is provided with a series of openings through which the numerals on the indicating-disks located within the case can be read. In order to protect the internal mechanism from dust and rain, I secure, preferably by cement, a thin transparent sheet of celluloid to the under side of the top *b*, thus prac-

tically sealing the openings through which the dials are read and absolutely preventing the ingress of dust or water into the case.

The case D is provided on the side carrying the spirit-level with the upright bearings *c'*, which latter are formed by slitting the bottom of the case and turning up the section thus cut. These bearings support the shaft E, carrying the worm E', and the shaft is provided at one end, at a point outside of the bearings, with a pinion *e*, which latter is adapted to be engaged by the pinions *e'* *e*². These pinions *e'* *e*² are secured to the shaft F and engage the pinion *e* at diametrically opposite points. These pinions *e'* and *e*² are so located relative to each other and to the pinion *e* that when one is in engagement with the pinion *e* the other is out of engagement. Hence one rotates the worm in one direction and the other rotates it in the reverse direction. The shaft F is mounted in the crown B, and, if necessary, in bearings carried by the adjacent member of the front fork A, and carries at its lower end the star-wheel *f*, the teeth of which latter are adapted to engage a striker secured to the spokes of the front wheel or to the wheel-rim. A tooth of the wheel *f* is engaged at each revolution of the front wheel, and as the wheel *f* has five teeth it will be seen that the front wheel turns five times to each revolution of the shaft F.

Secured on the top of the crown B and encircling and secured to the stem C is the sleeve G, provided at its upper end with a short flange *g*, while its lower end snugly fits within the central opening in the base of the case D. This sleeve forms a bearing for the graduated collar H and worm-wheel H', and the two parts H and H', which are when in use firmly united, so as to turn together, rest on the sleeve between the upturned flange *g*³, formed on the bottom of the case, and the flange *g*, integral with the sleeve.

The worm-wheel E' meshes with the teeth of the worm, and hence it follows that as the worm is turned by the gearing and detent before described the worm-wheel is also revolved around the steering-head and carries with it the graduated collar H, which latter overlaps the adjacent circular edge of the top *b* of the case D. This collar H is so geared

as to make a complete revolution in a mile, and the surface thereof is graduated, as shown in Fig. 2, to represent the fractions of a mile.

The frame of the machine is supported on the steering-head at a point above the collar by the antifriction-balls I, which latter are carried by the curved flange rigidly secured to the steering-head at a point above the sleeve G.

The worm-wheel II', which, as before stated, is secured to the graduated collar, so as to cause the latter to be rotated, is provided on its lower face with a depending pin or tooth i , which latter engages successively the teeth of the units-wheel i' and turns said wheel i' a distance equal to one tooth at each complete revolution of the collar II. The wheel i' in turn is provided with one long tooth i'' , which latter engages successively the teeth of the wheel i'' and turns the latter a distance equal to one tooth at each complete revolution of the wheel i' , while wheel i'' is provided with a single depending tooth i''' , which latter engages successively the teeth of wheel i'' and turns the latter one tooth at each complete revolution of the wheel i'' . The wheels i' , i'' , and i''' each carry a disk having the numerals from "0" to "9," inclusive, and the wheels are also prevented from accidental movement by the springs i^4 , which, bearing against the teeth, produce sufficient frictional contact to prevent accidental turning. With this cyclometer it will be seen that the fractions of a mile are indicated by the graduated collar, while the miles traversed are indicated by the units, tens, and hundreds wheels, which, as before stated, are visible through the transparent celluloid sheet secured to the under side of the top b of the case D.

I have previously described that the worm E' is rotated by pinions $e^2 e'$, located on shaft F, and that the pinions e' e^2 are so spaced that when one is in engagement with the pinion e the other is disengaged. By means of this arrangement the direction of rotation of the disks can be reversed, so as to bring them without trouble, work, or inconvenience back to the starting-point, and it also enables a rider who has ridden a distance from a starting-point to reverse the direction of rotation of the collar and disks, and thus be able to tell at any time how far he is away from the starting-point.

The mechanism for holding either wheel e^2 or e' in engagement with the wheel e consists of the washers j , located, respectively, above and below the lower deck of the crown B and are sufficiently removed from each other to permit the shaft F to be moved longitudinally a distance sufficient to bring one wheel into engagement with wheel e and disengage the other, and the shaft is locked in such elevated or depressed positions by the latches k , one of which is secured to the upper face of the lower deck J, while the other is secured to the lower face of said lower deck. These latches are designed to partly embrace the

shaft between the washer, the upper latch holding the shaft elevated and holding the pinion e' in contact with pinion e , while the lower catch enters between the lower washer and lower deck and holds the shaft in its depressed position.

The spirit-level K is located adjacent to the worm and is firmly embedded in and supported by a rubber cushion K', which protects the glass vial from injurious shocks. This vial, containing the liquid, is located under the slot c , and the air-bubble being visible through the slot enables the rider to see at a glance the amount of rise or fall a predetermined horizontal distance in the surface of the ground. This improvement is not only a novelty in the line, but it also is serviceable in that it measures the distance traveled and enables the rider to regulate his speed according to the slope of the hill, and thus frequently save the necessity of dismounting for a rest. Again, the rider is enabled by means of the device to familiarize himself with the roads, and thus put himself in a position to select the shortest and most level roads for his travels, and by locating the parts on the front fork of the machine they are less liable to be injured, displaced, or stolen than the detachable cyclometers now in common use, and by locating them on the top form they are always in plain sight of the rider and can be read by him without dismounting.

It is evident that numerous slight changes might be made in the general arrangement of parts herein shown and described without departing from the spirit and scope of my invention, and hence I would have it understood that I do not limit myself to the precise details shown, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. The combination with a bicycle-frame, of a cyclometer consisting of an indicating device which surrounds and is adapted to rotate on a part of the frame, and means for rotating this indicating device operated by a wheel of the machine.
2. The combination with a bicycle-frame, of a two-part cyclometer, one part of which surrounds and rotates upon the steering-head, and means operated by a wheel of the machine for turning this part of the cyclometer.
3. The combination with a bicycle-frame, of a two-part cyclometer, one part surrounding the steering-head and actuating the other part.
4. The combination with a bicycle-frame, of a two-part cyclometer one part surrounding the steering-head, and the other secured to the fork-crown and gearing connecting the two parts.
5. The combination with a bicycle-frame, of a two-part cyclometer one part secured on

the fork-crown at one side of the steering-head and the other part surrounding the steering-head and a spirit-level located on the other side of the steering-head.

5 6. The combination with a bicycle-frame, of a metal case adapted to rest on the fork-crown and provided with a central opening for the passage of the steering-head, a cyclometer located within said case at one side of
10 the steering-head and a spirit-level located therein on the opposite side, substantially as set forth.

7. The combination with a bicycle-frame,

of a two-part cyclometer, one part resting on the fork-crown and the other surrounding the 15 steering-head, a worm-wheel and gearing for actuating the section of the cyclometer surrounding the steering-head, and gearing connecting the two sections of the cyclometer.

In testimony whereof I have signed this 20 specification in the presence of two subscribing witnesses.

CHARLES S. LABOFISH.

Witnesses:

WILLIAM J. ABERNATHA,
HENRY BUSSE.