No. 622,884. Patented Apr. 11, 1899.

J. DAVIDSON.

CYCLOMETER WATCH.

(Application filed Aug. 17, 1897.)

(No Model.) 3 Sheets—Sheet 1.

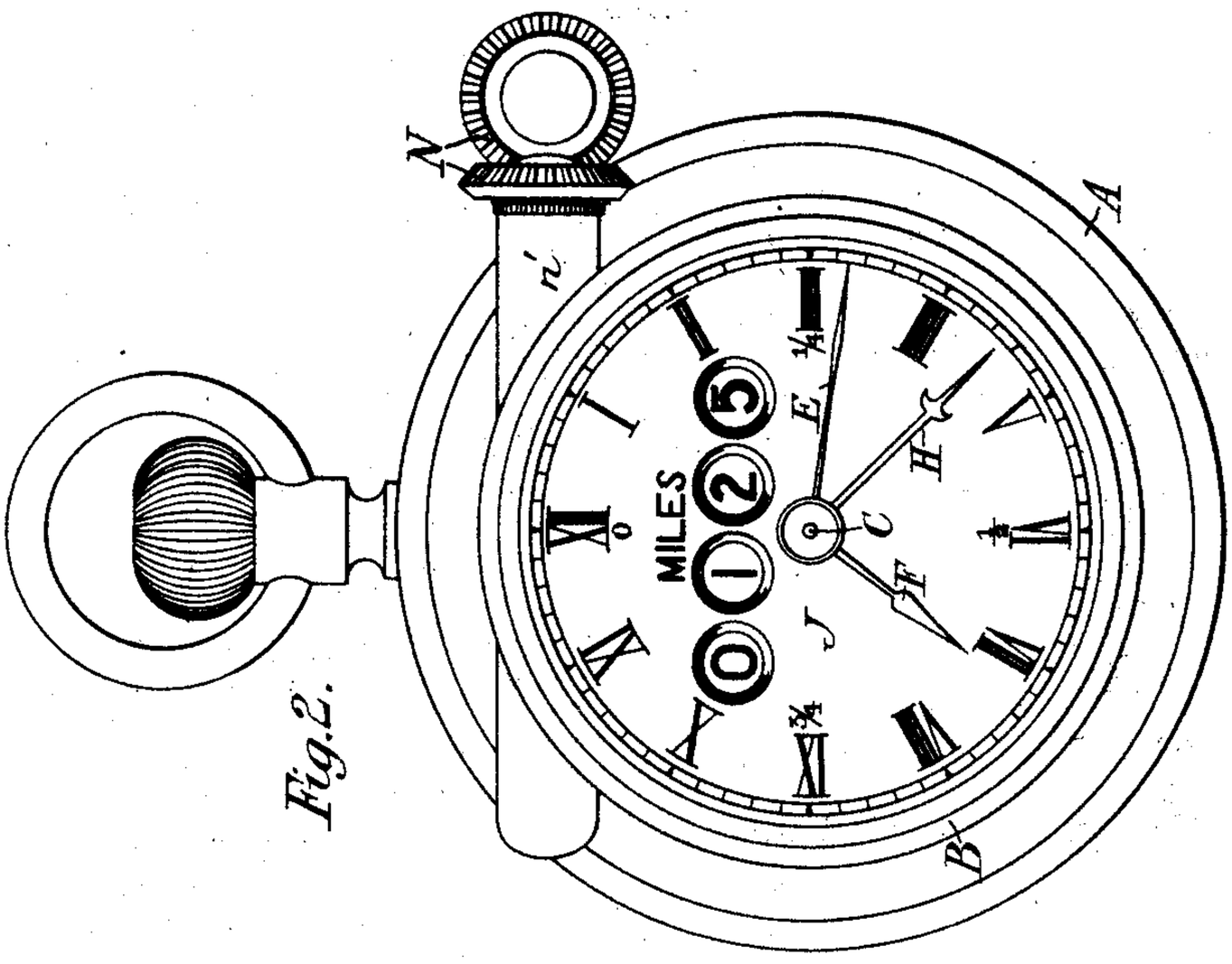

Fig. 2.

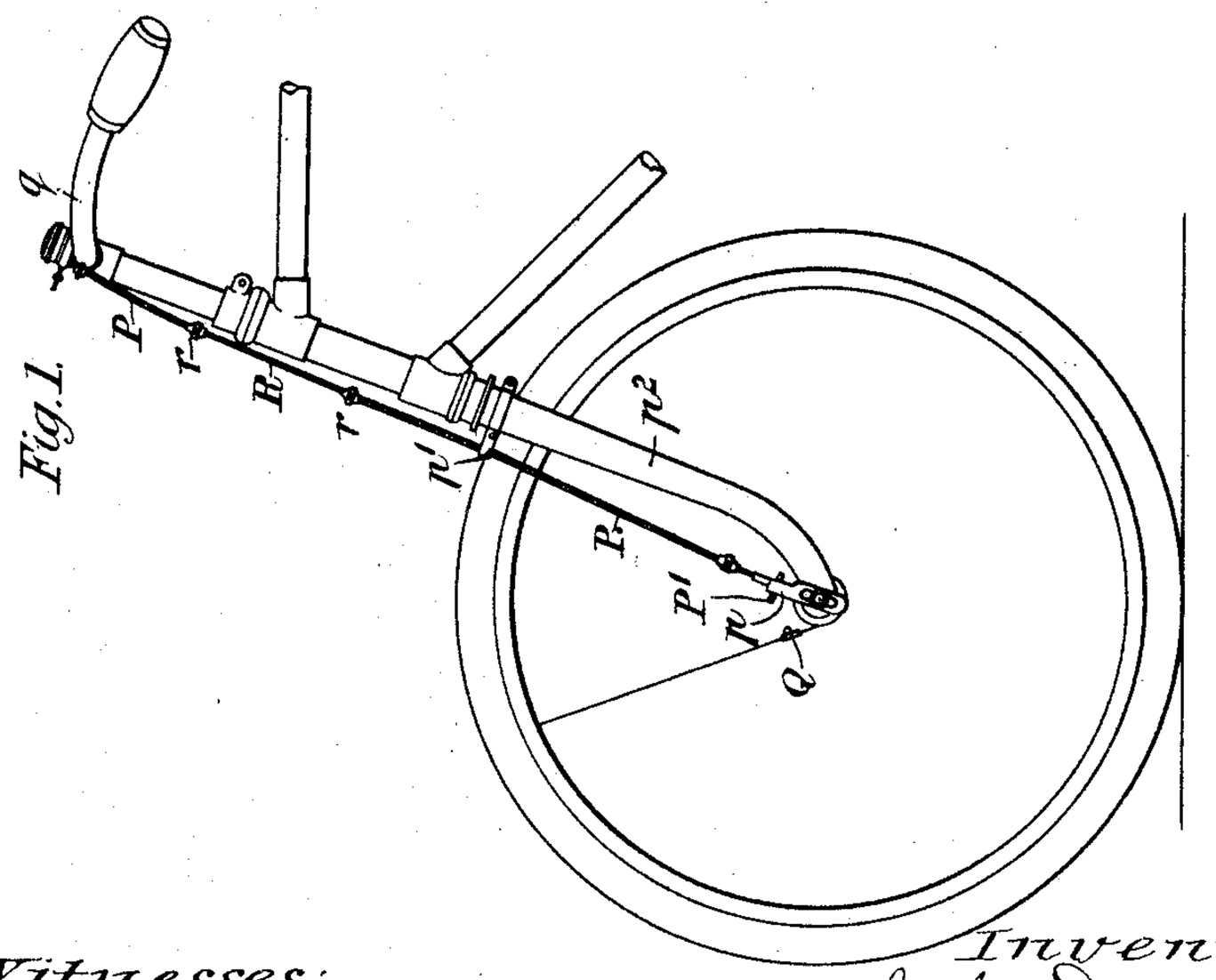

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2

Fig. 3.

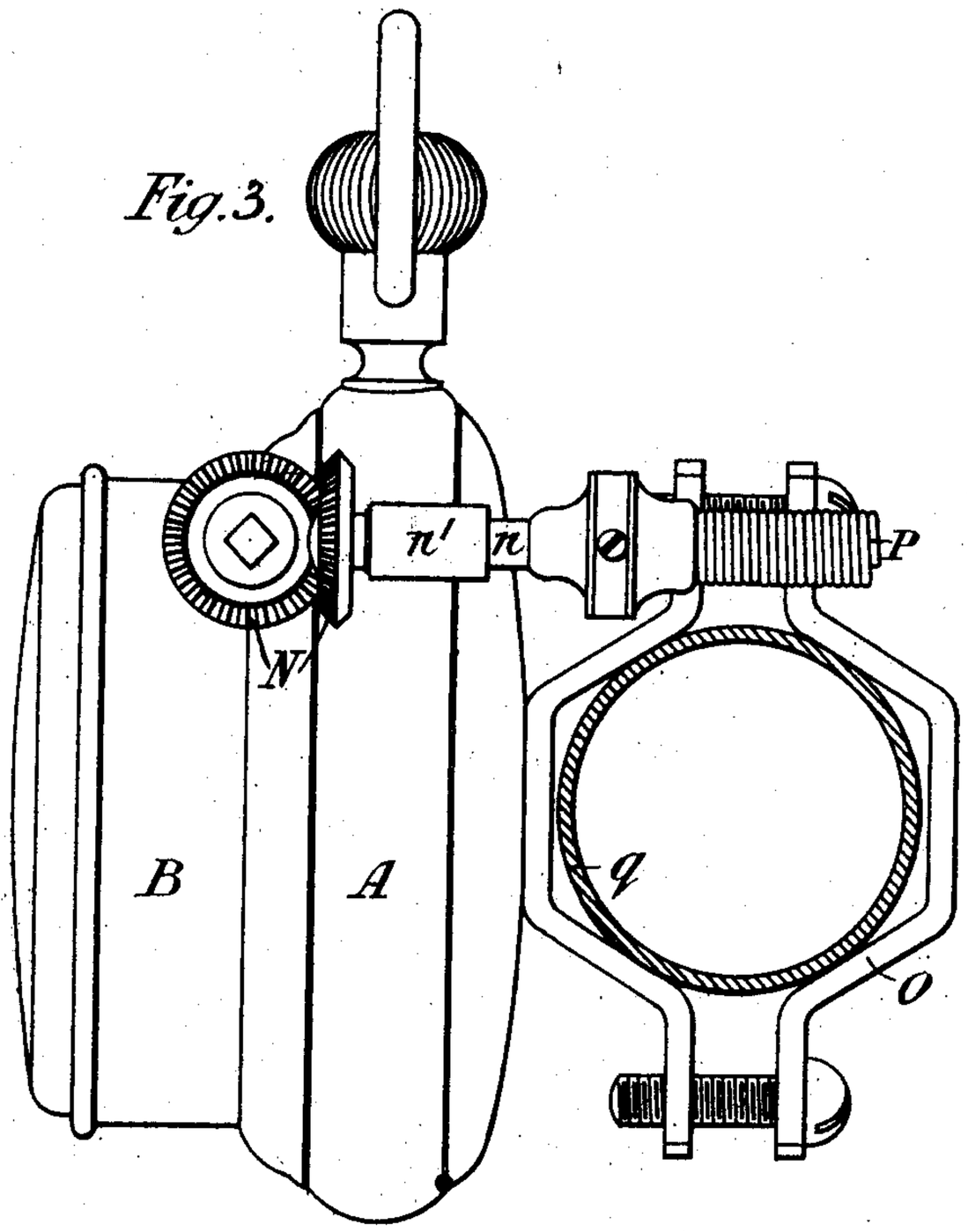
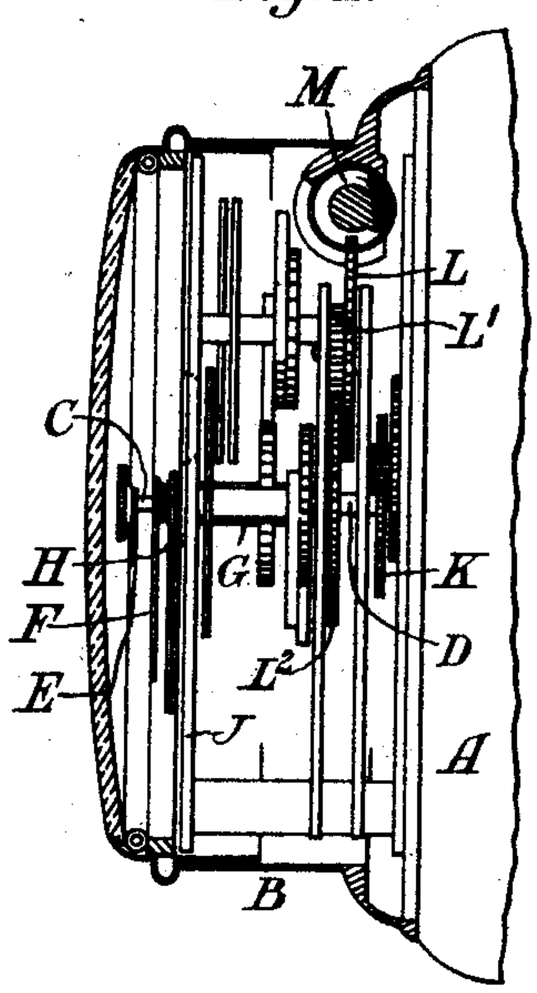


Fig. 4.



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(No Model.) 3 Sheets—Sheet 3.

Fig. 5.

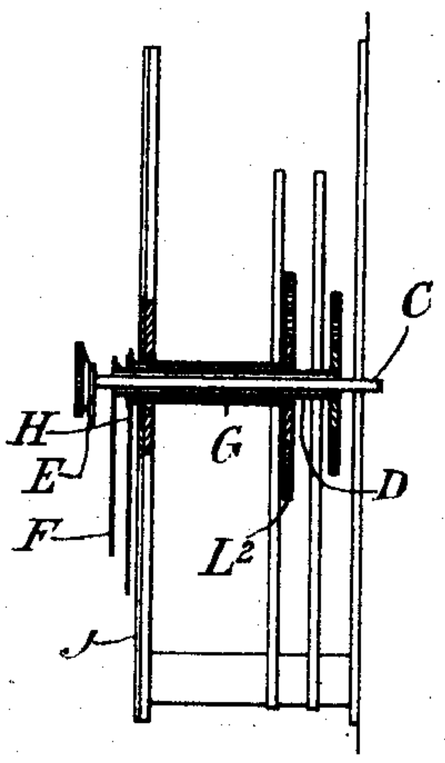


Fig. 6.

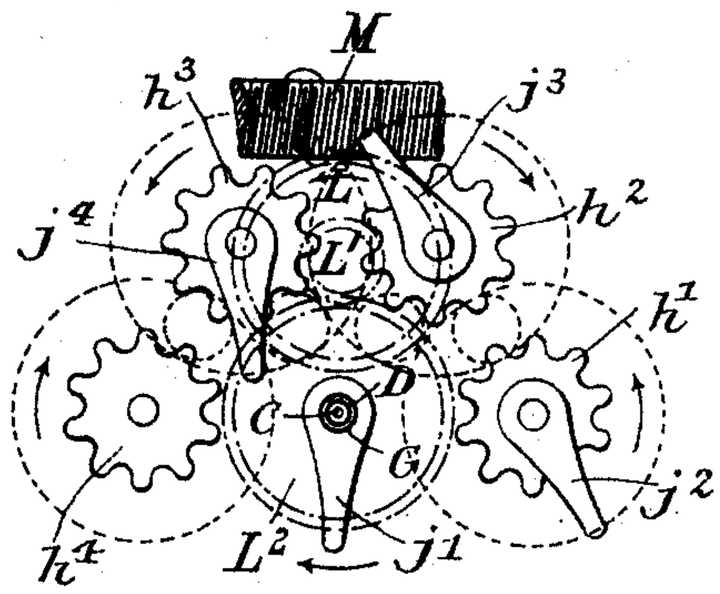


Fig. 7.

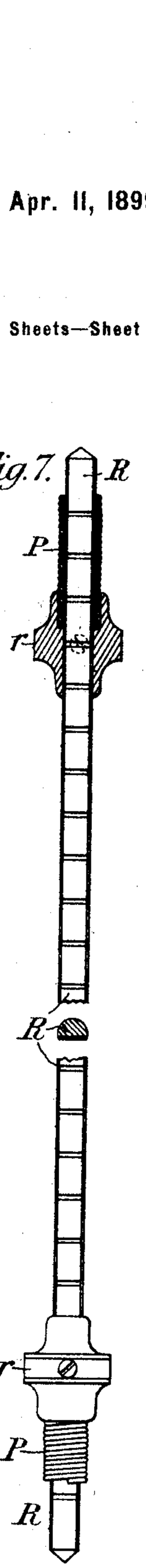
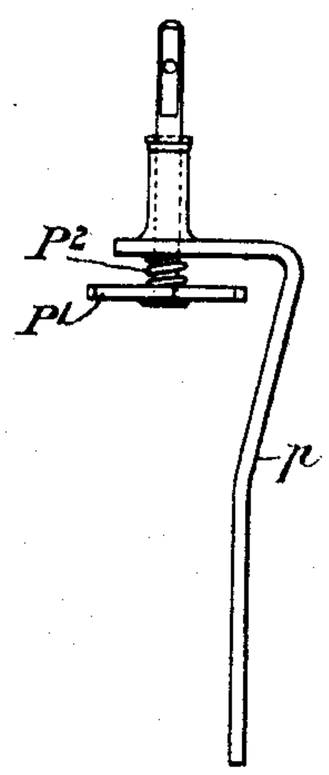


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN DAVIDSON, OF LONDON, ENGLAND.

CYCLOMETER-WATCH.

SPECIFICATION forming part of Letters Patent No. 622,884, dated April 11, 1899.

Application filed August 17, 1897. Serial No. 648,527. (No model.)

To all whom it may concern:

Be it known that I, JOHN DAVIDSON, a subject of the Queen of Great Britain and Ireland, residing at 272 Friern road, East Dulwich, London, in the county of Surrey, England, have invented certain new and useful Improvements in Cyclometer-Watches, of which the following is a specification.

This invention relates to a combined cyclometer and watch for the use of cyclists, the same being constructed to indicate both time and distance traveled upon one face or dial. For this purpose the cyclometer is secured to the front of the watch or is made integral therewith and the arbor of the mile-hand of the cyclometer is made hollow to receive the arbors of the hour and minute hands of the watch, which latter arbors are made sufficiently long to extend through the arbor of the mile-hand and to project from the face or dial of the cyclometer, so that when the hour and minute hands are in position they revolve in front of the said face or dial, which, in addition to having the cyclometer indications, is marked with divisions like the dial of an ordinary watch to indicate time.

The instrument may be attached to any suitable part of the cycle; but I prefer to attach it to the handle-bar, so that it can be always seen clearly by the rider. I drive the cyclometer by a flexible and adjustable shaft from a star-wheel near the hub of one of the wheels of the cycle, which star-wheel is rotated intermittently in a well-known manner by a striking-piece on one of the spokes of the cycle-wheel.

In order that my invention may be clearly understood, I will now describe the same with reference to the accompanying drawings, in which—

Figure 1 is a side view of the front wheel of a bicycle and a portion of the frame and shows my cyclometer-watch attached to the handle-bar. Fig. 2 is a front view, and Fig. 3 is a side view, of the cyclometer-watch, drawn to an enlarged scale for the purpose of greater clearness. Fig. 4 is a transverse section through the cyclometer, showing the internal mechanism in side elevation. Fig. 5 is a longitudinal section through the hollow arbor of the cyclometer. Fig. 6 is a face view of the cyclometer mechanism. Fig. 7 is a side view, partly in section, of the telescopic connection in the flexible driving-shaft; and Fig. 8 is a front view of the bracket for supporting the flexible shaft.

Like letters of reference denote corresponding parts in the several figures.

A denotes generally the watch, and B the cyclometer, the frame of the latter being secured on the front of the frame of the former or being formed integrally therewith, as may be desired. The watch is the same as an ordinary watch without dial, except that the arbors C and D of the minute and hour hands E F, respectively, are much longer than in an ordinary watch, and they project through the hollow arbor G of the mile-hand H of the cyclometer. All three hands are arranged to rotate in front of the dial or face J, which serves for indicating both time and distance, it being marked with minute and hour divisions like an ordinary watch-dial, in addition to being perforated and divided in the usual manner of a cyclometer-dial.

I use any ordinary cyclometer having a central hand H, which rotates, say, once for each mile traveled, and a system of wheels h' h^2 h^3 h^4 and dials attached thereto, adapted to be turned intermittently by means of fingers j' j^2 j^3 j^4, each wheel in the series being advanced one tooth upon the completion of a revolution of the preceding wheel in the series, so as to indicate, respectively, units, tens, hundreds, and thousands of miles. Such cyclometers are well known and I make no claim to the same *per se*. The mile-hand of the cyclometer is driven through the train of wheels L L' L^2, the first of which gears with a worm M, whose spindle projects through the side of the case and is driven through a pair of bevel-wheels N, supported by bearings n', attached to or formed in the case.

The above-described cyclometer-watch may be attached to any suitable part of the frame of the bicycle; but I prefer to attach it to the handle-bar q, so that it may be in full view of the rider. For this purpose it is provided at the back with a suitable clamp O. The cyclometer is driven by means of a flexible shaft P, supported at the lower end by a bracket p, attached to the frame of the cycle

near the center of the front wheel. The said shaft is coupled at its upper end to the spindle *n* of one of the bevel-wheels N.

p' is an intermediate bearing attached to the front fork p^2 and serving to prevent the flexible shaft from swaying about too much. At the lower end of the shaft is a star-wheel P', which is driven intermittently in a well-known manner by a striking-piece Q upon one of the spokes of the front wheel of the bicycle. The star-wheel is prevented by a spring P^2 (see Fig. 8) from revolving too freely and overrunning the bicycle-wheel when struck by the aforesaid projection Q.

The instrument being attached to the handle-bar *q*, it is necessary or advisable that the flexible shaft be adjustable as to length to allow of the handle-bar being raised and lowered when required and to allow of the instrument being applied to machines of different sizes. For this purpose I make the flexible shaft in two parts connected by an intermediate piece R, which can slide in the hollow flexible portions of the shaft and can be fixed by screws in the couplings *r* in any position to which it may be adjusted. The flexible shaft may be conveniently made from coiled wire, or any other suitable shaft may be used.

One great advantage of my cyclometer-watch is that it affords a ready means of ascertaining the speed of travel, inasmuch as both distance and time are indicated on one dial, so that the time taken to travel a mile or any fraction or multiple of a mile can be instantly noted by simply observing the time and distance hands. What is known as the "dial mechanism" of the watch is indicated at K, Fig. 4. It is situated just in front of the top plate of the watch and behind the bottom plate of the cyclometer.

What I claim is—

In a combined cyclometer and watch having a dial marked with divisions or indications for time and distance the combination with the said dial of a mile-hand fixed on a hollow arbor, and hour and minute hands fixed upon arbors that project through the said hollow arbor of the mile-hand, substantially as described and for the purpose specified.

In witness whereof I have set my hand in presence of two witnesses.

JOHN DAVIDSON.

Witnesses:
W. M. HARRIS,
WALTER J. SKERTEN.