Edward A. Lewis
Velocimeter.

PATENTED
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Fig. 1.

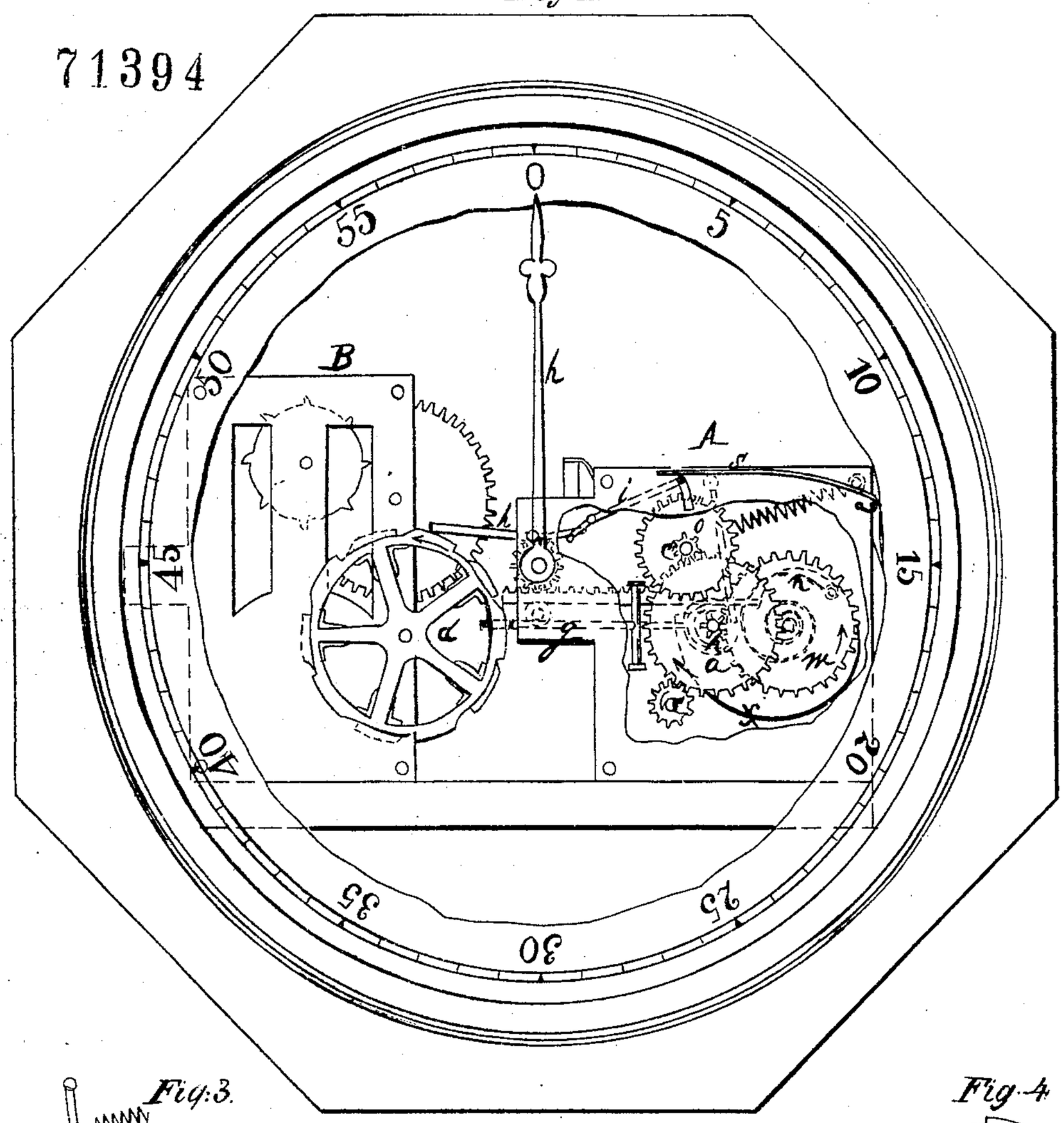


Fig. 3.

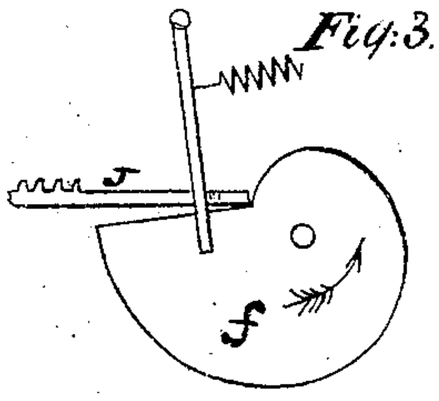


Fig. 2.

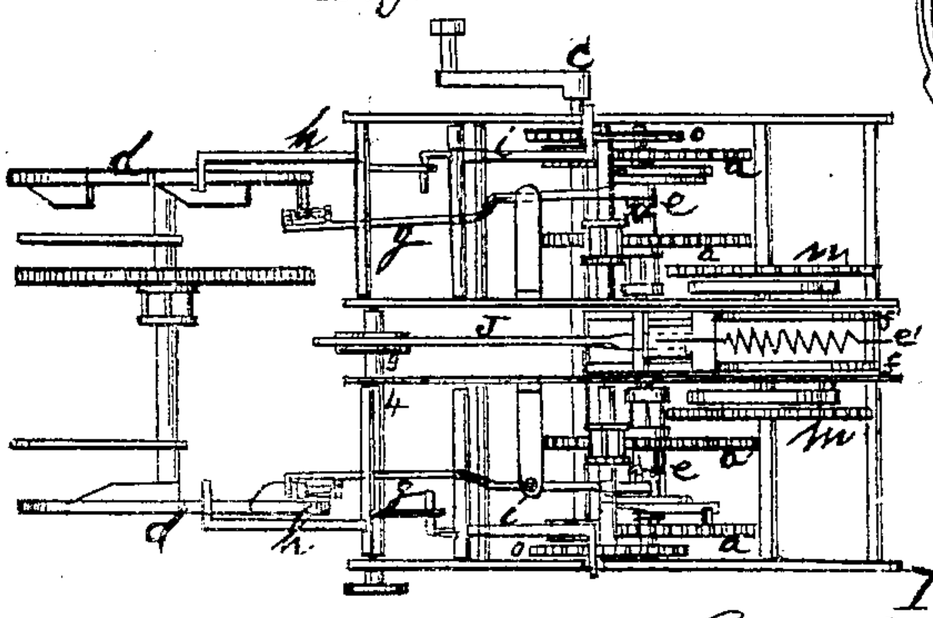
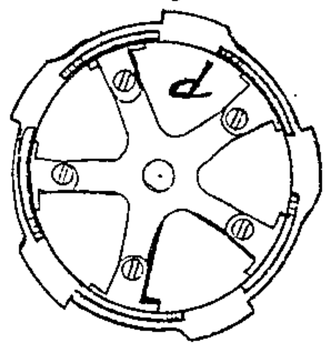


Fig. 4



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EDWARD A. LEWIS, OF ST. CHARLES, MISSOURI.

Letters Patent No. 71,394, *dated November* 26, 1867.

IMPROVEMENT IN VELOCIMETERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, EDWARD A. LEWIS, of the city and county of St. Charles, and State of Missouri, have invented a new and useful Improvement in Velocimeters; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a new and improved machine whereby the velocity of running machinery may be measured; and the invention consists in an arrangement of wheels and eccentrics, which are operated by the moving machinery in part, and in part by clock-work and coil springs, but in such a manner that any variation in the speed of the machinery is indicated by an index-finger on a dial-plate.

The invention also consists in combining with the velocimeter a clock, which may indicate the time of day, while at the same time it exerts a governing influence over the velocimeter by rotating a portion of the wheels thereof, as will be hereinafter more fully described. In the accompanying plate of drawings my invention is illustrated.

Figure 1 represents a view of the machinery, showing a side view of the wheels of the velocimeter, and the clock-work, with a portion of the dial-plate, the latter being broken away in order to expose the wheels.

Figure 2 is a top view of the machine.

Figure 3 is a view of one of the eccentrics, showing the movable rack which is governed by the eccentric, and which in its turn governs the index-finger on the dial-plate.

Figure 4 is a side view of the clock-wheel of the velocimeter, which is driven by the clock-work.

Similar letters of reference indicate corresponding parts.

A represents the machinery of the velocimeter, and B the clock-work.

In describing the velocimeter it must be understood that it is composed of two sets or duplicated parts nearly throughout; two sets of wheels, two eccentrics, &c. There are also two wheels driven by the clock, which are immediately connected with the velocimeter.

The wheel marked *d*, in the drawings, is driven by the clock, which makes one revolution in about thirty seconds.

c is a shaft which represents the point of connection with the running machinery, the speed of which is to be measured, and which is supposed to be continuously operated thereby. Upon the axle *k* are two cog-wheels. One, *a*, is rigidly fastened in the axle, and revolves continuously, it being driven by the pinion of the shaft *c*. The other wheel, *a'*, turns loosely on the axle, and is subject to be periodically connected with and released from the other wheel by a movable disk and saw-tooth arrangement or clutch, situated between them, and seen at *e*. These periods of connection and release are determined by a lever, *g*, which is governed by the clock-wheel *d*.

The loose cog-wheel *a'* on the axle of the wheel *o* is geared into the pinion-wheel *c*, and the small pinion 2 on the shaft *k* rotates the wheel *m*, which rotates the eccentric *f*.

The compound lever *h i* is caused by the clock-wheel *d* to periodically rise and fall at *i* into the teeth of the wheel *o*. The lever at *i* being raised, and the wheels on the axle *k* being connected by a disk and clutch so as to move together, upon turning crank *c* all the wheels will revolve, including the eccentric *f*, which pushes the rack or rod J, which operates or influences the index-finger *p*. The disk bearing the clutch *e* is caused to rotate with the cog-wheel *a* by means of a pin projecting from the latter, which, pressing against a steel spring fastened to the disk, carries it around. When the lever at *i* falls, it makes a sudden stoppage of wheel *o*, together with cog-wheel *a'* and the eccentric *f*. This causes the projecting pin to break over the steel spring, thus severing the connection between cog-wheels *a a'*. By the time that the projecting pin (by another revolution) overtakes the steel spring again, the lever *g* will have separated the parts of the clutch-coupling *e*, so that the disk may revolve freely with wheel *a*, and yet have no effect upon wheel *a'*. So long as the lever *i* remains down, the wheels *o* and *m*, with the eccentric *f*, continue stationary, holding the index-finger to the point at which it had arrived when the stoppage occurred. In the mean time the other eccentric, *f'*, having performed its six seconds' rotation, on the other side of the instrument, is now stopped by a similar process. The lever at *i* is, by the action of the clock-wheel *d*, raised so as to release the wheels *o m*, and the eccentric *f*, whereupon the latter is caused, by a coil spring *n*, to return to its first position. The index-finger is now being held

stationary by the eccentric f'. The lever g immediately throws into connection the cog-wheels a a', and the eccentric f is thus made to commence another rotation forward. When this one is again stopped, as before, the eccentric f' is released, and is returned by the spring, and commences to rotate from its standing-point, and so the alternate movements are kept up as long as the crank at e is turned by the machinery, and the clock continues to run.

The lever g is operated by projecting flanges on the sides of the clock-wheel d, which flanges or wings engage with the end of the lever every six seconds, thereby operating the clutch which connects the two wheels a a'.

S is a spring, which bears upon the lever i to force it to engage with the cogs of the wheel o.

The rack or lever J has a T-shaped end, which engages alternately with the eccentrics f f', and as it is crowded forward by them the cogs on it engage with the small pinion 3 on the index-finger shaft 4. This T-lever or rack is kept in contact with the eccentric by the spiral spring e', and it will be borne in mind that the eccentrics do not make a full revolution, but are brought back by the coil spring at certain periods of time.

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

The use of one or more eccentrics, with intermittent rotation, regulated by connecting clock-work and other appropriate mechanical devices, (as gear-wheels, springs, &c.,) for indicating, at repeated intervals of time, the rate of speed of running machinery in such intervals, while such machinery continues in motion

In combination with a velocimeter thus constructed, I claim a clock, which may indicate the time of day in connection therewith, substantially as set forth.

The above specification of my invention signed by me, this 24th day of April, 1867.

EDWARD A. LEWIS.

Witnesses:

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