

EDWARD P. CURTISS.

Improvement in Counting Registers for Locomotives.

No. 125,179.

Patented April 2, 1872.

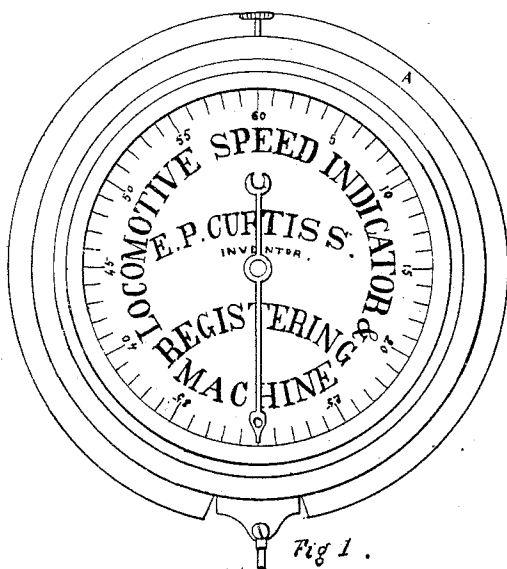


Fig 1.

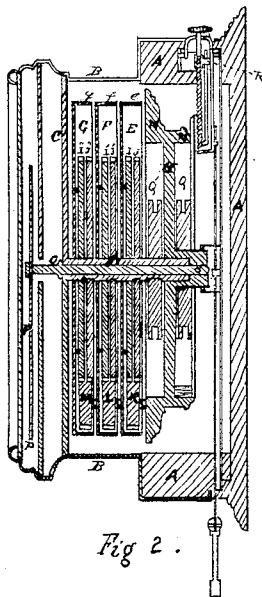


Fig 2.

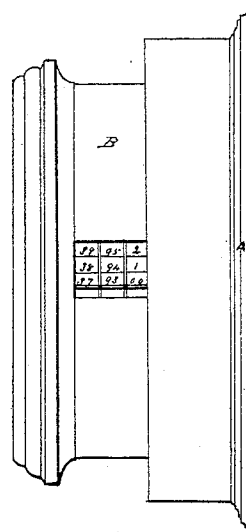


Fig 3.

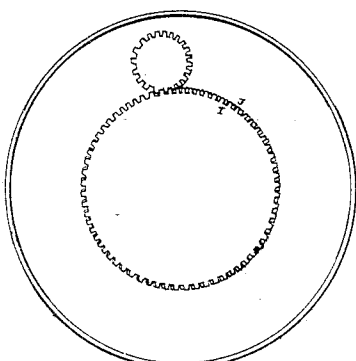
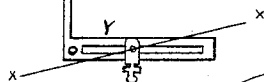
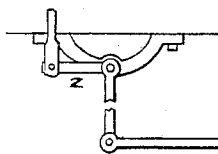


Fig 4.

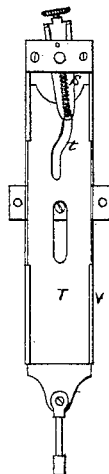


Fig 5

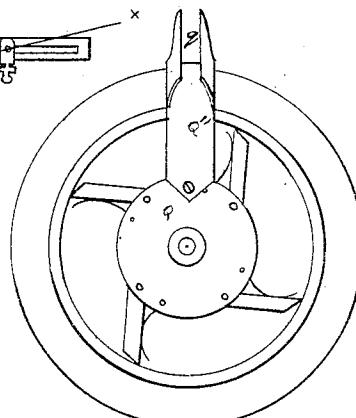


Fig 6.

WITNESS

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EDWARD P. CURTISS, OF CLEVELAND, OHIO.

IMPROVEMENT IN COUNTING-REGISTERS FOR LOCOMOTIVES.

Specification forming part of Letters Patent No. 125,179, dated April 2, 1872.

SPECIFICATION.

I, EDWARD P. CURTISS, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and Improved Locomotive Speed-Indicator and Registering-Machine, of which the following is a specification:

The nature of this invention relates to a machine for indicating the speed of locomotives and registering the number of revolutions of the driving-wheels computed into miles.

In the drawing, Figure 1 is a front or face view. Fig. 2 is a vertical section. Fig. 3 is an exterior side view, showing the edges of the registering-wheels through the glass window in the side. Fig. 4 is a detached view of a pair of the cog-wheels which are situated inside of the registering-wheels. Fig. 5 is a detached view of the sliding plate which operates the indicator and registering devices. Fig. 6 is a detached view of the ratchet-plate and one of the ratchets.

A is a wooden base, to which is secured an outer base, B, within which is arranged the operating parts of the machine. Secured to the case A is a plate, C, to which is secured a hollow spindle or pipe, D. On this spindle or pipe are arranged the registering-wheels E F G and a ratchet-wheel, H. The registering-wheels consist of wheels made of thin metal, having flanges *efg* turned up at their edge; and on the outer surfaces of said flanges are marked the registering-figures. Within the said wheels E F G, and on the spindle D, are placed cog-wheels I J. The wheel I, or the one next to the plate of the wheels E F G, is fastened to them, so that they will be moved by the wheels I. The wheels J are secured to the spindle D, which has a groove on one side, in which a key is placed to secure them. The wheels I have one hundred teeth, and the wheels J have one tooth less, or ninety-nine; and each pair of wheels I and J mesh with a pinion attached to the wheels next back of them. Playing on the same spindle D is a ratchet-wheel, H, to whose hub is secured a spindle, O, which passes through the spindle D, and which carries a pointer, P, which indicates the speed on the dial P'. The wheel H has two flanges, N N, making a recess on both sides, in which play the ratchets Q Q'. The ratchet Q' is secured to the spindle D, while

the other, Q, plays around the hub of the wheel H. These ratchets consist of wheels Q, having four short levers, *q'*, pivoted to their periphery, their ends being sharp and engaging with the flanges, springs *q''* keeping them against the flanges. The ratchet Q has an arm, Q'', attached to it, which reaches upward and has a slot, *q*, in it, which fits over an adjustable nut, R, on the adjusting-screw, R', attached to an oscillating lever, S, the said oscillating lever being operated by the sliding plate T, which plays in grooves in the frame V, which is secured to the case B. The lower end of the said sliding plate T is connected, by connecting-rods and cranks, to the cross-head of the locomotive-engine, from which motion is derived for operating the machine. The sliding plate T has a curved groove, *t*, in which a pin on the oscillating lever S plays, which gives motion to the said lever.

The operation of this machine is as follows: The cross-head of the engine has a movement in the line *xx*, and, having a connection with the slotted arm of the crank *g*, gives an oscillating motion to the said crank, which is transmitted, through the connecting-rods and bell-crank *z*, to the sliding plate T, which operates the oscillating lever S, which gives a vibratory motion to the ratchet-wheel Q, the ratchet Q carrying the wheel H one notch at each vibration, which is indicated by the pointer P on the dial. The object of the ratchet Q' is to prevent the wheel H from moving backward in the vibrations of the ratchet Q. The speed of the locomotive is thus indicated. The distance is registered as follows: To the wheel H is attached the first pinion K, which revolves with the wheel H and travels around the cog-wheels I and J, which, being constructed as described, (the one attached to the registering-wheel having one hundred teeth and the other ninety-nine,) causes the registering-wheel E to move forward one tooth in each revolution of the wheel H, and thus indicates and registers the number of revolutions made by the driving wheel, which, being computed into miles, gives the exact distance traversed by the driving-wheels of the locomotive. To the wheel E is attached the second pinion L, which operates like the first on the wheels I' J' in the registering-wheel F, moving the wheel F for-

ward one tooth in each revolution of the wheel E, thus indicating and registering the number of hundreds of miles traveled. To the wheel F is attached the third pinion M, which operates the registering-wheel G, which indicates and registers the thousands of miles traveled, the figures on the registering-wheels, as seen in Fig. 3, reading in units, tens, hundreds, and thousands as they come into line. The speed is indicated by the pointer P on the dial P', which is divided into sixty parts, like the second-dial of a watch. The distance traversed by the pointer P in one minute of time indicates the speed; as, for instance, if the pointer travels to 20 on the dial in one minute, it indicates twenty miles per hour.

Having thus described my invention, what I

claim, and desire to secure by Letters Patent, is—

The sliding plate T t, frame V, oscillating lever f, adjustable nut R, and adjusting-screw R', in combination with the ratchet-wheel H, ratchets Q Q', slotted arm Q' q, spindle O, pointer P, spindle D, registering-wheels E F G, fast and loose differential cog-wheels I J, pinions K L M, a case, A B C, and cranks and connections, all constructed, arranged, and operating as described, to indicate both the rate of speed and distance traveled, as set forth.

EDWARD P. CURTISS.

Witnesses:

GEO. W. TIBBITTS,
J. G. POMERENE.