

J. W. BOYLE.
Devices for Registering the Slipping of
Locomotive-Wheels.

No. 150,746.

Patented May 12, 1874.

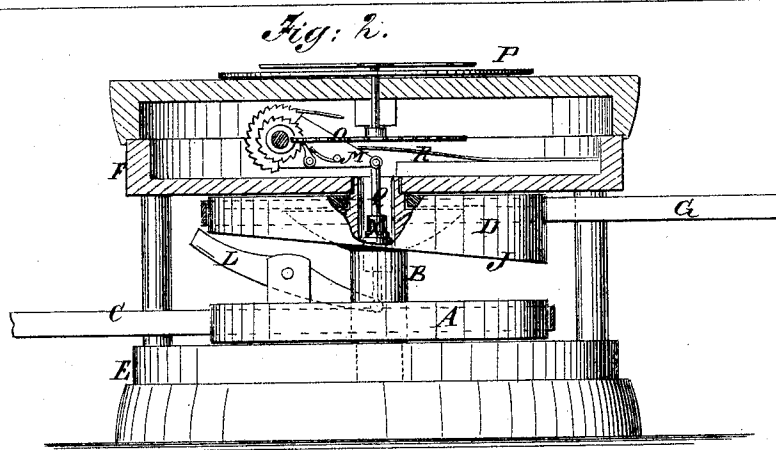
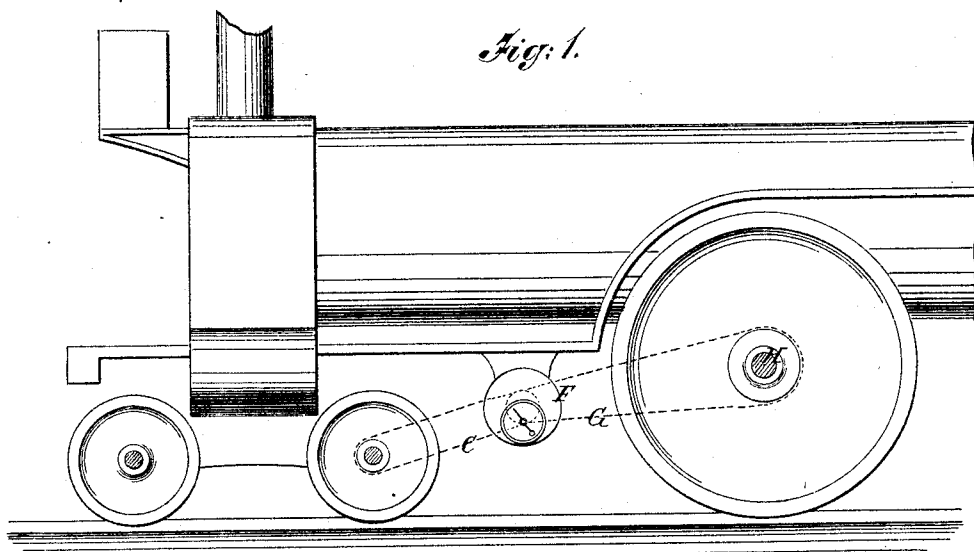
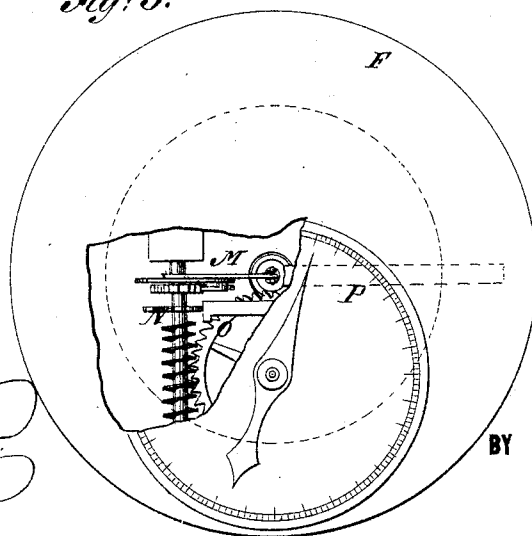


Fig: 3.



WITNESSES:

Chas. Nida
Chas. Nida

INVENTOR:

J. W. Boyle

BY

M. M. M.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES W. BOYLE, OF NEW TEXAS, PENNSYLVANIA.

IMPROVEMENT IN DEVICES FOR REGISTERING THE SLIPPING OF LOCOMOTIVE-WHEELS.

Specification forming part of Letters Patent No. **150,746**, dated May 12, 1874; application filed April 4, 1874.

To all whom it may concern:

Be it known that I, JAMES W. BOYLE, of New Texas, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Machine for Registering the Slips of Locomotive-Wheels, of which the following is a specification:

My invention consists of a couple of wheels or disks independent of each other, driven synchronously, one by the truck-axle and the other by the driving-wheel axle, and having a cam-and-ratchet mechanism, so contrived that in case the driving-wheel slips, and thus turns one of said pulleys faster than the other, the pawl mechanism will be caused to move the recording apparatus one degree for each turn of one wheel more than the other, and thus record the slip.

Figure 1 is a side elevation of a locomotive with my improved slip-measuring apparatus. Fig. 2 is partly a plan view and partly a horizontal section of the apparatus. Fig. 3 is partly a front elevation and partly a section of the recording apparatus.

Similar letters of reference indicate corresponding parts.

A is a pulley mounted on a shaft, B, suspended by any suitable case or frame, E F, from the boiler or truck-frame. C is a belt from another pulley on one of the truck-axes running on pulley A, and turning it. D is another pulley running loosely on shaft B, and turned by a belt, G, from the axle H of the locomotive driving-wheels. The pulleys are proportioned so that when the driving-wheels run without slipping pulleys A D will turn alike as to speed; but when the drivers slip the pulley D will be turned faster, and for each revolution gained of A, its cam-shaped side J will move the lever L of a ratchet-lever, M, which works the train N O of a recording

apparatus, by which the number of revolutions of the drivers gained over the truck-wheels by slipping will be recorded on the dial P. The lever L is connected to the pawl-lever M by a rod, Q, running through the hollow shaft B, and revolving with it, being made in two sections, and swiveled or coupled at x, so as to revolve in one part with lever L, and at the same time actuate the pawl-lever. This rod, also the pawl-lever and the lever L, are pushed back by a spring, R. The pulleys A and D may be geared to the axles by cogged gearing, if preferred; but it is believed with proper means for keeping the belts tight they will be the best. The same object can be accomplished by a large wheel loose on the axle of the driving-wheels gearing with a wheel fast on the truck-axle, and having a register on it to be worked by a cam on the driving-wheel or shaft as it slips by the loose wheel, whose rotations would be regulated to those of the truck-axle. The same contrivance may also be used to record slip of bits and the like.

The object of recording the slip is to check against carelessness on the part of the engineer, which is mainly the cause thereof, and thus to prevent it as much as possible, as it is very injurious to the wheels and the rails.

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

The combination of a wheel or pulley rotated synchronously with one of the truck-axes, a cam or wheel revolved by the driving-wheel axle, a ratchet mechanism, a lever operating such ratchet mechanism, and a recording mechanism, substantially as specified.

JAMES W. BOYLE.

Witnesses:

WASHINGTON LOWRY,
CHARLES RITTER.