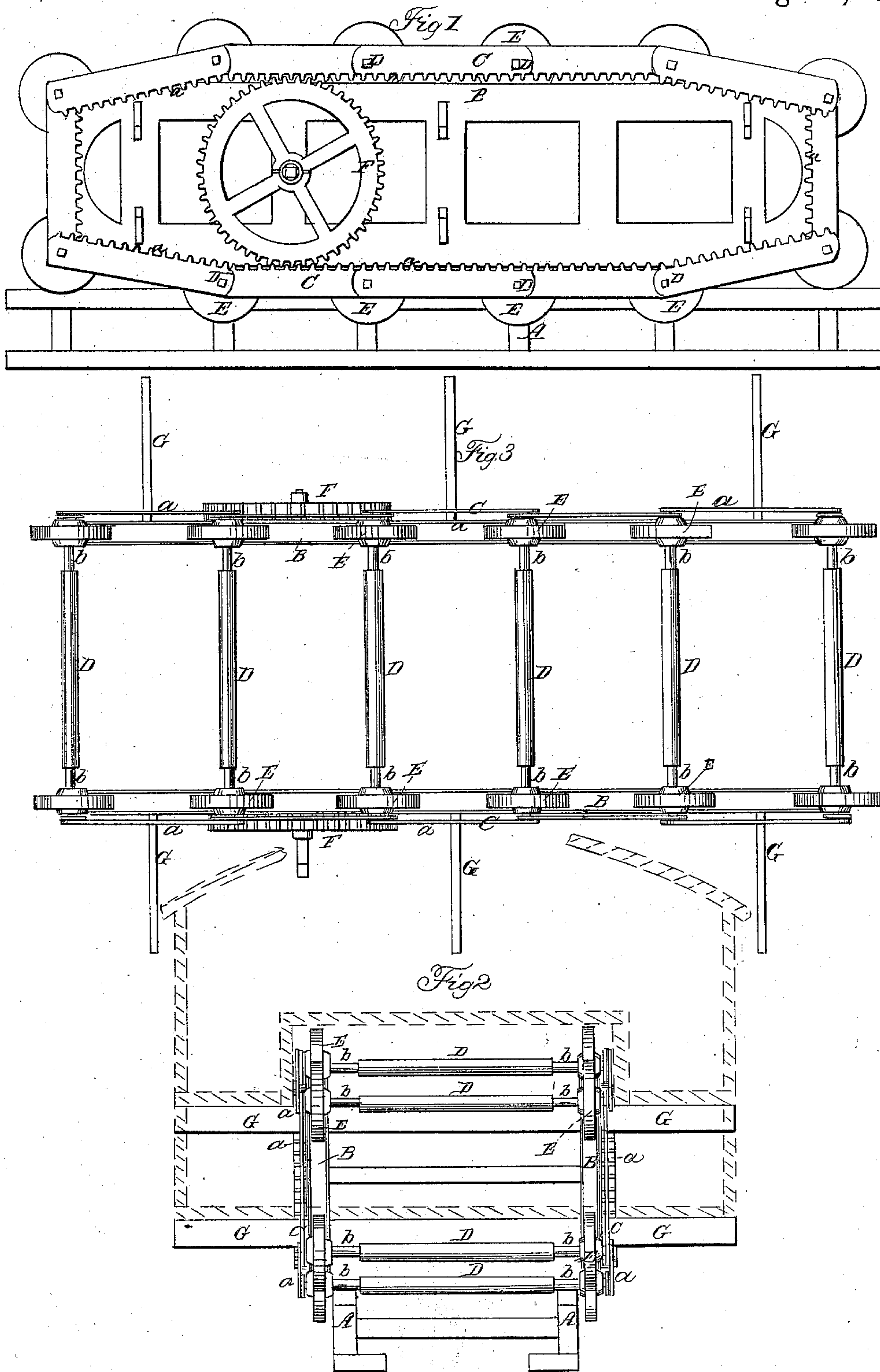


J. INGERSOLL.

Car Truck.

No. 21,259.

Patented Aug. 24, 1858.



UNITED STATES PATENT OFFICE.

JAMES INGERSOLL, OF GRAFTON, OHIO.

RUNNING-GEAR FOR RAILROAD-CARS.

Specification of Letters Patent No. 21,259, dated August 24, 1858.

To all whom it may concern:

Be it known that I, JAMES INGERSOLL, of Grafton, in the county of Lorain and State of Ohio, have invented a new and useful Improvement in the Running-Gear of Railroad Locomotives and Cars; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1, is a side elevation of my improved running gear. Fig. 2, is an end view of the same. Fig. 3, is a plan or top view of the same.

Similar letters of reference, in each of the several figures indicate corresponding parts.

My invention relates to an improvement in the new character of rail road and other carriage running gear patented to me Feby. 12, 1850, said running gear consisting of an ellipsoidal guide way on the frame of the carriage and an endless series of rollers running in said track. The rollers being guided by flanges, and the endless track being supported on the peripheries of the rollers which intervene in endless succession between it and the surface of the ground or rail, and which are broad enough to keep themselves erect and steady without the use of axles or rods extending across the carriage.

The object of my present improvement is to render available for purposes of locomotion, the principle involved in said patented running gear, and the nature of the same consists, 1st, in so constructing the rollers with long or short axles, that they shall extend down along the sides of the rails of the rail road and the axles rest upon the rails, in such a manner that the rollers serve as guards or flanges to prevent the train from running off the rails and the axles produce sufficient traction on the rails to insure the forward propulsion of the locomotive or car when the endless chain is set in motion.

It consists, 2nd, in the employment of an internally toothed endless chain, in contradistinction to a toothless, endless chain, and an externally toothed driving wheel which is arranged within the ellipse in which the chain travels, in combination with an endless ellipsoidal guide way and an endless series of rollers running in said guide way, and having their peripheries or their axles

come in contact with the elevated or other rails of a rail road.

By my system of rail road and other carriage running gear, it is thought much friction will be avoided as the weight is removed entirely from those wheels and axles of the endless series which lie on top of the ellipsoidal guide way and thrown upon those axles and wheels which lie upon the rails of the rail road, and as said lower axles do not move until picked up by the endless guide way very little power will be expended for overcoming friction or contact of one surface with another, the only friction to be encountered being the contact of the lower side of the ellipsoidal guide way and the friction rollers, and this will be fully compensated for by the increased leverage and speed secured by moving the weight from the circumference of the annular rolling motor or endless chain, instead of from the center, and by the interposition of independently moving auxiliary rollers which accelerate the speed acquired by the main motor from the locomotive driving wheels.

To enable others, skilled in the art, to make and use my invention, I will proceed to describe its construction and operation.

A, represents an elevated rail road which I propose to have locomotives and cars constructed with my improved running gear to travel upon.

B, B, are the grooved ellipsoidal ways. C, C, the endless chains consisting of a series of cog toothed links *a, a*, and axles or shafts D, the latter of which extend across the track from one grooved guide way to another as shown.

E, E, are friction rollers arranged loosely on the axles so as to travel in the grooves of the guide ways.

The axles should be made round at the two points *b, b*, as shown so that they may roll at certain stages of the travel of the endless chain, and also in order to form shoulders which will serve as inner guards to prevent the train running off the track. It will be observed that a portion of the series of axles is always resting upon the elevated rails A, A, of the rail road track and that when the chain is in motion that said portion remains stationary while the other portion of the series is moving, also that the portion which is at rest remains so until it is successively picked up and elevated to the top of the ellipsoidal guide

way, and that then the other portion descends and rests still upon the rail road rails until its turn for being picked up and elevated arrives. Notwithstanding the axles
5 being stationary when on the rails the rollers revolve and accelerate the speed of the endless chain, and consequently the upper rollers travel more rapidly and make the forward movement in a given time, greater
10 than if the rollers had no movement independent of the chain.

Instead of having the axles extend entirely across the rail road track, a double track might be provided and each of the
15 wheels furnished with an axle which has two short journals adapted for resting upon the rails between which the rollers run.

F, F, are cog toothed driving wheels arranged within the elliptical space around
20 which the endless chain moves. These wheels gear into the teeth of the links of the endless chain and impart a continuous motion in the path of an ellipse to the chain, they being actuated by connecting rods in
25 the same manner as the ordinary driving wheels of a locomotive are actuated.

It may be obvious that the mode I adopt of giving motion to the chain is not necessarily strictly confined to an arrangement of
30 gearing wherein a portion of the axles rest stationary upon the rails, but will be equally advantageous when employed in connection with my patented arrangement of gearing wherein the rollers instead of the axles run
35 upon the rails.

In using my present invention in connection with a locomotive or car, I construct the locomotive upon the transverse rods or bars G, G, somewhat after the manner illustrated in the Fig. 2, of the drawing. Of
40 course the driving wheels and cog teeth of the links will only be provided on the endless chains of the locomotive and not on the car or cars of the train as they are only
45 necessary as a means of transmitting the power of the locomotive to the whole train, the friction rollers on the car or cars answering every purpose for actuating the chain or chains so as to accomplish the forward movement of the cars at a speed com-
50 mensurate with the speed of the locomotive.

What I claim, as my invention and desire to secure by Letters Patent, is—

1. The manner herein described of constructing the rollers with long or short axles,
55 so that they shall extend down along the sides of the rails of the rail road, and the axles rest upon said rails, substantially as and for the purposes set forth.

2. The employment of an internally
60 toothed endless chain, and an externally toothed driving wheel, in combination with an endless ellipsoidal guide way, and an endless series of rollers, substantially as and for the purposes set forth.

JAMES INGERSOLL.

Witnesses:

G. YORKE AT LEE,
A. H. BURDINE.