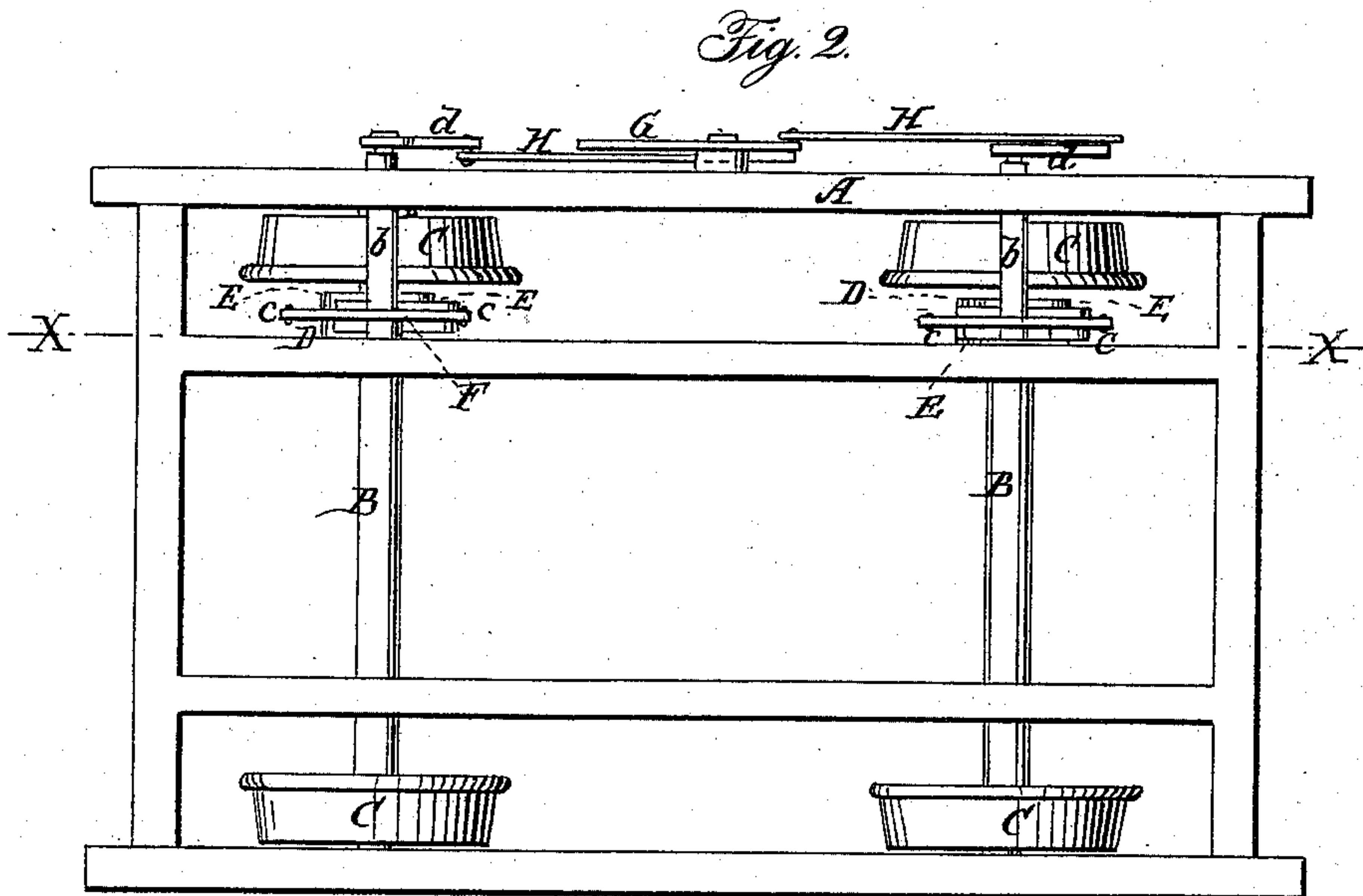
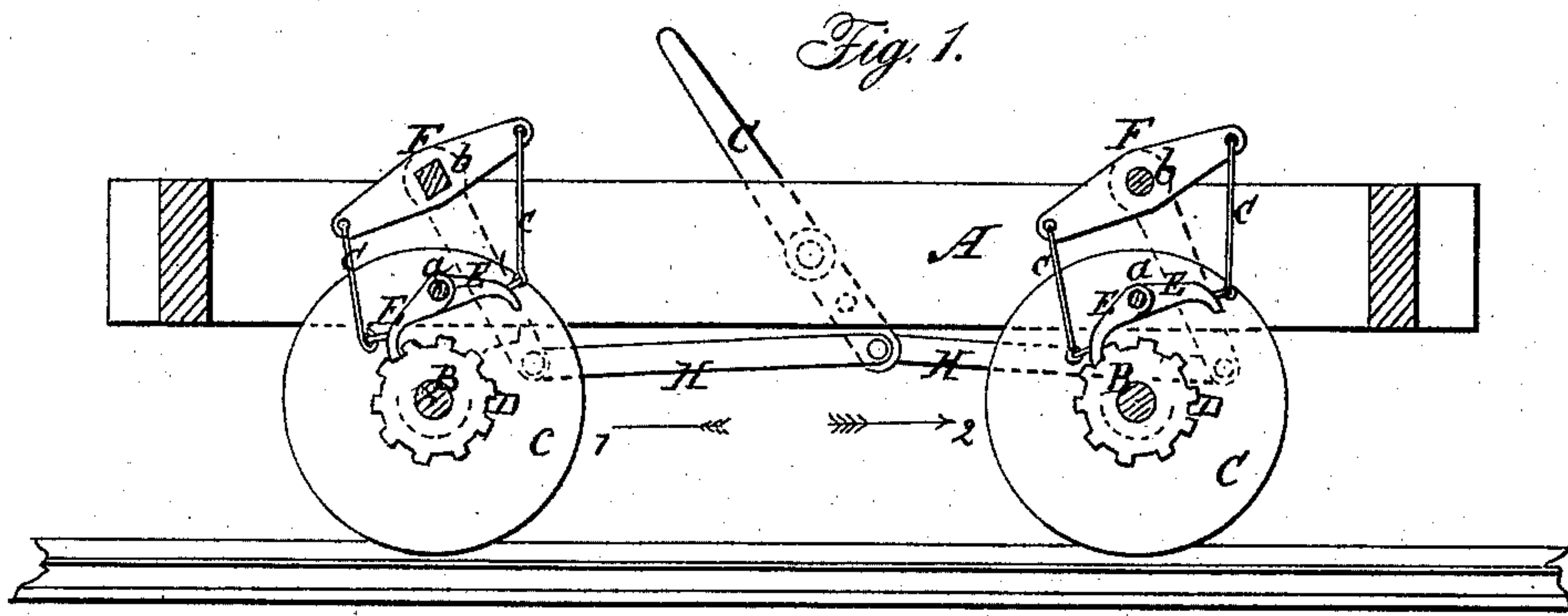


A. Z. LONG.

Car Brake.

No. 70,235.

Patented Oct. 29, 1867.



Witnesses:

Theo. Fische
Wm. Truwin

Inventor:

A. Z. Long
Per *[Signature]*
Attorneys

United States Patent Office.

A. Z. LONG, OF SCRANTON, PENNSYLVANIA.

Letters Patent No. 70,235, dated October 29, 1867.

IMPROVED CAR-BRAKE.

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, A. Z. LONG, of Scranton, in the county of Luzerne, and State of Pennsylvania, have invented a new and improved Car-Brake; and that the following description, taken in connection with the accompanying drawings hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from all others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

This invention relates to a new and improved brake, designed to prevent a retrograde or back movement of a car or a train of cars, when the same is on an incline or rising grade. The invention is more especially intended for cars on roads having great inclines or steep grades, up which the cars are drawn by a rope and stationary engine, and is designed to hold the cars perfectly stationary on the grade in case the rope should break, a contingency of not unfrequent occurrence, and which is frequently attended with serious accidents both to life and property. In the accompanying sheet of drawings—

Figure 1 is a side sectional view of my invention, taken in the line *x x*, fig. 2.

Figure 2 a plan or top view of the same.

Similar letters of reference indicate like parts.

A represents the frame of a car-truck, B B the axles, and C the wheels thereof. These parts may be constructed and arranged in the usual way, and therefore do not require a special description. On each axle B there is firmly keyed a toothed wheel, D, and over each of these wheels D in the frame A there are secured two pawls E E', both of which are on the same pivot *a*. On the frame A, directly over the pawls E E', there are placed small shafts *b b*, having levers F on them, one on each, said levers projecting at equal distances from opposite sides of the shafts, as shown in fig. 1. The pawls E E' are connected to the levers F F by chains *c*, and on the outer ends of the shafts *b b* arms *d* are fitted, the lower ends of which are connected to a lever, G, on the side of the frame A by rods H H.

By actuating the lever G the pawls E E' may be adjusted so that either of them may engage with the toothed wheels D, and when the car is moving in the direction indicated by arrow 1, fig. 1, and the pawls E are adjusted so as to engage with the toothed wheels D, it will be seen that the pawls E effectually prevent the car backing or moving in a retrograde direction, indicated by arrow 2, and when the pawls E' are adjusted so as to engage with the wheels D, the car can move in the direction indicated by arrow 2, but not in the direction indicated by arrow 1. Therefore it will be seen that in case of the breaking or parting of the rope by which a car or train of cars is drawn up a steep grade, the wheels of the car or cars will be effectually locked in position and prevented from descending the grade retrogradely.

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

The toothed wheels D and pawls E E', in combination with the levers F, connected with the pawls and the lever G, substantially as and for the purpose set forth.

The above specification of my invention signed by me this 5th day of March, 1867.

A. Z. LONG.

Witnesses:

WM. F. McNAMARA,
ALEX. F. ROBERTS.