R. M. EVANS.

Car Brake.

No. 14,640. Patented Apr. 8, 1856.

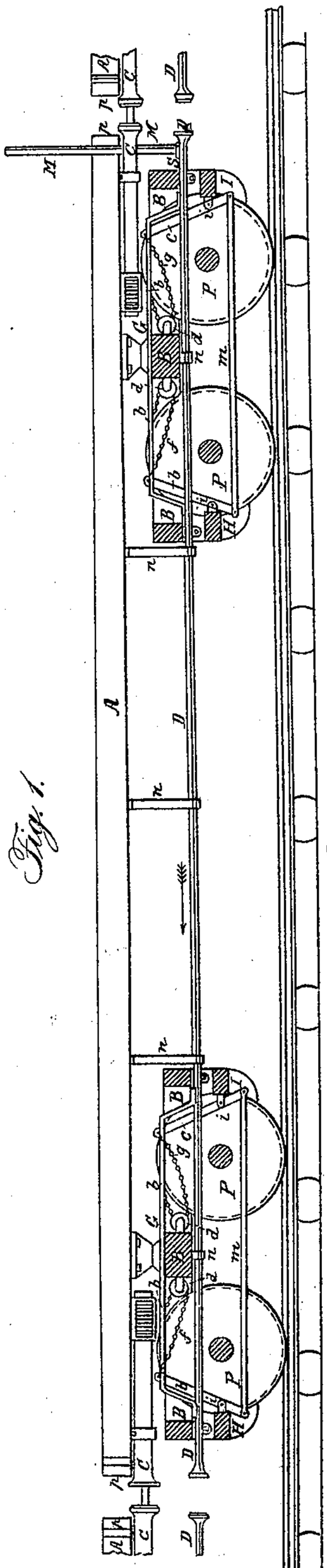

Fig. 1.

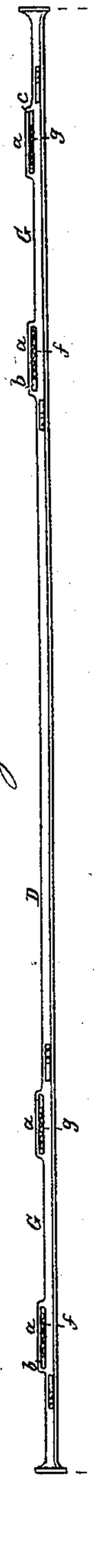

Fig. 2.

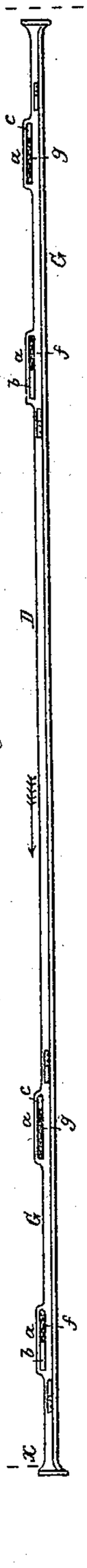

Fig. 3.

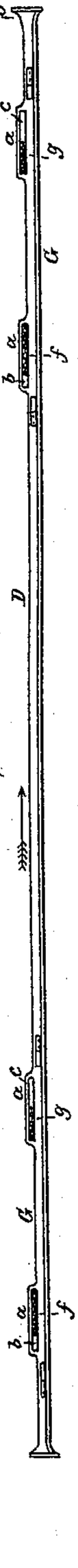

Fig. 4.

UNITED STATES PATENT OFFICE.

R. M. EVANS, OF LACONIA, NEW HAMPSHIRE, ASSIGNOR TO R. M. EVANS AND CHAS. S. GALE.

RAILROAD-CAR BRAKE.

Specification of Letters Patent No. 14,640, dated April 8, 1856.

To all whom it may concern:

Be it known that I, R. M. EVANS, of Laconia, in the county of Belknap and State of New Hampshire, have invented a new and improved Mode of Actuating Car-Brakes by the Momentum of the Cars; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings making part of this specification, Figure 1 being a side elevation of the frame of a car provided with my improved car brake and showing a vertical section of the trucks; Figs. 2, 3, and 4, top views of the "brake-rod," exhibiting respectively, the different positions of its levers and chains when the cars are running freely and when operating the brake in each direction.

Like letters designate corresponding parts in all the figures.

The nature of my invention consists in the arrangement of longitudinal slots in the brake-rods, (or in braces or side bows secured thereto,) through which the long arms of the brake levers extend, and their combination with chains passing from said brake rods around pulleys, or their equivalents, so as to change their direction, and thence extending to said levers, in such a manner that one of each pair of levers will be operated directly by the brake rods, and the other, by its chain, in whichever direction the cars may be moving, substantially as hereinafter set forth.

A straight rod, or bar, D, (which I will designate the "brake rod,") of iron, wood, or other material possessing sufficient strength and firmness is placed lengthwise under each car frame A, being mounted in suitable bearings, or braces, *n*, *n*, to allow it to slide forward and backward, and to prevent its bending by any force applied to its ends. A convenient situation for locating this rod, is just below the truck frames BB, and above the axles of the wheels PP. Each end should terminate in an enlarged head, as represented; and when it is at rest, or not in action, it should react, each way, within say about an inch and a half, as far as the drawheads CC, or so that, when the draw-springs are compressed by the ordinary force of cars rolling together, the heads of two adjacent "brake rods" will barely be brought into contact with each other. When the "brake rod" is situated below the truck frames, side braces, or bows, GG, are firmly secured to it, so as to reach up over one or more of the cross-pieces of the truck frames BB, in order to allow a proper length to the levers by which they act upon the brakes. The levers *b c*, composing each pair, are connected, at the lower ends, by a rod *m*, which, as the levers are pressed in opposite directions, serves as a fulcrum for both, and thereby equalizes their action. A short distance from their fulcrums, the levers are pivoted, at *i i*, respectively to the brakes H I, on opposite sides of the wheels. The brakes may be arranged in the ordinary or any convenient, manner. The upper end of each lever passes up through a longitudinal slot *a*, (Figs. 2, 3, and 4,) in the brace G, so situated that when the "brake rod" is centrally situated, or at rest, beneath the car, the levers will be in contact at the most distant ends of each pair of slots, as seen in Fig. 2. The length of the slots is to be sufficient to allow the requisite play of the levers therein, and may be readily calculated. From the upper ends of the levers, chains *f g*, (or their equivalents,) extend, first, toward each other, then pass around pulleys *d d*, secured in some convenient position to the truck frame, and return in the opposite directions, to suitable points *h h*, where they are attached to the brace G. These chains should be drawn nearly or quite straight, when the "brake rod" is at rest; and in order to adjust them all accurately to equal degrees of tension, and provide for any disarrangement which might take place whereby the brakes of one car might not all be actuated with equal degrees of pressure, they may be provided with swivel bolts, and screws, or other equivalent means of adjustment.

When a train is to be stopped or checked, the engineer, by any suitable contrivance, brings a block, or its equivalent, situated on the rear end of the tender, in line with the foremost "brake rod." This block may be so arranged that it can be controlled from the engineer's position on the engine. Any other device that will bring the "brake rods" into contact, or action, may be employed; and different methods will readily be suggested to anyone skilled in the art of constructing cars. Then, by checking, or reversing, the engine, the cars are forced together, by their own momentum, so as not only to bring all the "brake rods" in the train, into contact, thereby forming in fact,

one continuous rod, but the several "brake rods" are moved backward under their respective cars, a distance proportional to the momentum of each car. The action of the "brake rods" will be readily understood. Thus, suppose the cars are going toward the right hand:—The "brake rods" will be forced in the direction indicated by the arrows in Figs. 1 and 3. The forward levers *c c*, of each pair, will be driven immediately backward by the "brake rods" themselves, and thus bring their brakes II, into contact with their wheels. At the same time, the ends of the chains *f f*, which are attached to the braces GG, of the "brake rods," will be drawn backward just as far as the "brake rods" themselves move, (as shown at *x*, Fig. 3,) and will consequently draw their levers *b b*, forward the same distance. Thus their brakes HH, will also be pressed against the wheels with the same force as the other brakes II. The operation of the chain and levers in this case is exhibited in Fig. 3.

When the cars are going in the other direction, the action of the "brake rods" is the same as above described, except that the levers *b b*, will be acted on immediately, and the levers *c c*, by their chains *g g*, as represented in Fig. 4, the distance which the "brake rods" move in the opposite direction, being indicated at *y*. A limit is given to the distance which the "brake rods" may be moved, by the dead woods *p p*, of the car frames. When these are forced into contact, the action of the brakes is terminated; so that no injury can be done to the brakes by any force with which the cars may be moving.

Only one brake to each wheel is represented; but one may be employed on each side of each wheel, and the operation will be the same as described above, the number of levers, chains and slots being doubled. An apparatus for operating the brakes by hand may be applied to each car in the usual manner, as seen at M, *s*, Fig. 1.

The arrangement of "brake rods," levers, chains, etc., may be varied in many ways without changing the nature of the invention.

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

The arrangement and combination of slots *a*, *a*, of the brake rod D, with the chains *f*, *g*, and brake levers *b*, *c*, in such a manner that one of each pair of levers will be operated immediately by the brake rod at the end of its respective slot, while the other lever of each pair will be moved in the other direction by the action of said chains, in whichever direction the cars may be moving, substantially as herein described.

R. M. EVANS.

Witnesses:

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