2 Sheets—Sheet 1.

J. RADDIN.

TRAIN-BRAKE FOR RAILWAY-CARS.

No. 193,178. Patented July 17, 1877.

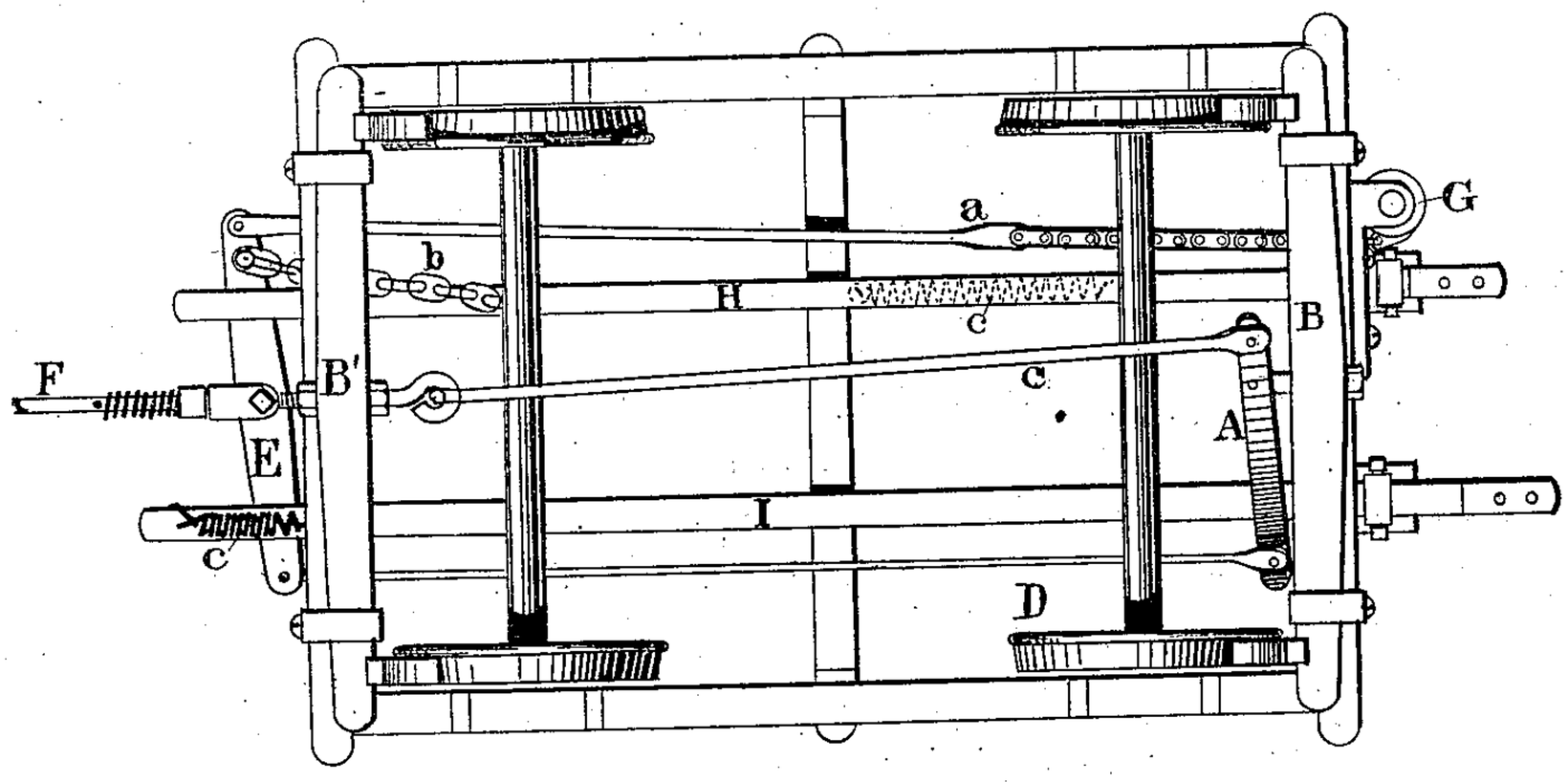

Fig. 1.

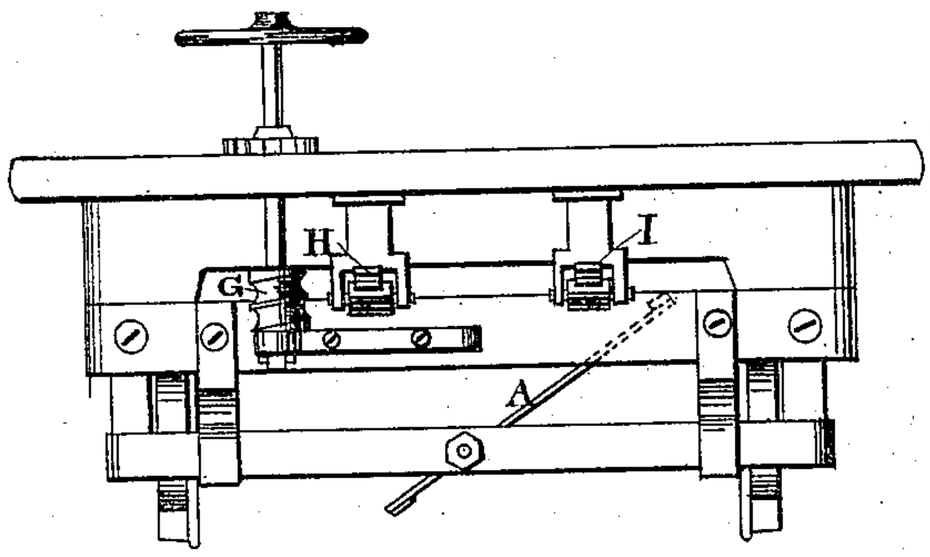

Fig. 2.

WITNESSES

F. F. Raymond 2d

A. J. Oettinger.

INVENTOR

John Raddin

2 Sheets—Sheet 2.

J. RADDIN.

TRAIN-BRAKE FOR RAILWAY-CARS.

No. 193,178. Patented July 17, 1877.

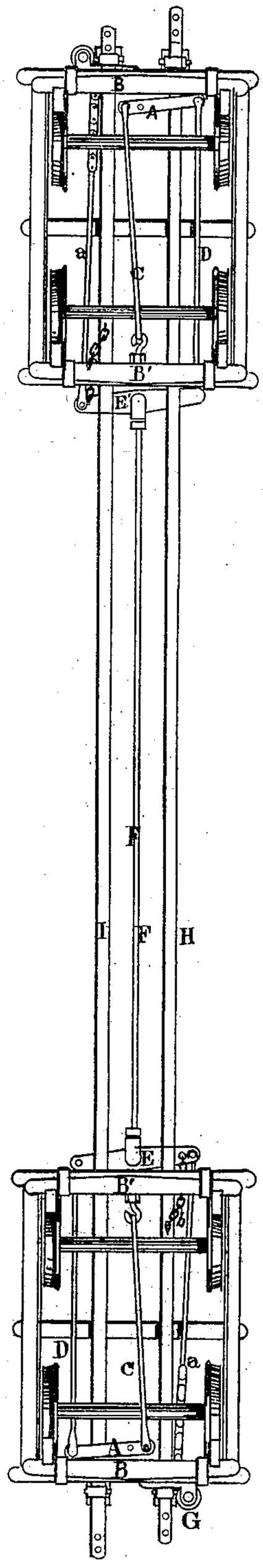

Fig. 3.

WITNESSES
F. F. Raymond 2d,
A. J. Oettinger.

INVENTOR
John Raddin

UNITED STATES PATENT OFFICE.

JOHN RADDIN, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN TRAIN-BRAKES FOR RAILWAY-CARS.

Specification forming part of Letters Patent No. **193,178**, dated July 17, 1877; application filed May 17, 1877.

To all whom it may concern:

Be it known that I, JOHN RADDIN, of Lynn, in the county of Essex and State of Massachusetts, have invented an Improvement in Train-Brakes, of which the following is a specification:

This invention has for its object the adaptation of the present system of brake-levers known as the "Hodge" brake, that depend upon the hand-wheel, drum, and chain for their operation, to the train-brake principle, or more particularly to the hereinafter-described means of utilizing the train of levers commonly employed in setting the brake-shoes in applying the braking force from the locomotive without the employment of one or more cylinders and pistons for each car.

Reference is made to the accompanying drawings, forming a part of this specification, in explaining the nature of my invention, in which—

Figure 1 is a plan; Fig. 2, an end elevation; and Fig. 3, a plan of my attachment, showing two trucks.

To better illustrate the working of my invention it is shown as applied to one truck of the car in Figs. 1 and 2, as the principle of construction and operation is the same with both trucks, as represented in Fig. 3.

The construction and operation of the Hodge brake is too well known to require an extended description, so that I will but briefly enumerate the system of levers employed.

The lever A is pivoted near one end to the cross-bar B, which carries the brake-shoes, and has at its extreme end, beyond its pivoted point, which is the fulcrum of the lever, the rod C, which is fastened to the cross-bar B′, also carrying brake-shoes, and connects it with the end of lever A. The rod D connects the extremity of the lever A opposite the fulcrum with one end of lever E, which is pivoted at the center of its length to the sliding rod F, that connects the system of levers and connecting-rods described with a like system of levers and rods on the other truck of the car, through the lever E′, pivoted to the other end of the sliding rod F, as shown in Fig. 3. The end of the lever E opposite that laid hold of by rod D is connected with the drum G by the chain and rod *a*, and to the sliding bar H by the short chain *b*, or a loose joint; the sliding bar I, as represented in Fig. 3, is fastened to one end of lever E′ by a loose joint or chain. These sliding bars H I extend the entire length of the car, are secured to the framework of the car or truck in any desirable way that will permit them to slide, and are provided on their ends with means for coupling to like bars on adjoining cars having like connections with their train of levers to those already described, so that when coupled the connected bars form a continuous medium for conveying and distributing the power applied at the engine through them to each train of levers throughout the train.

The springs *c* return the bars to their normal position when the power is off.

It will be observed that two sets of sliding bars are necessary, as one only acts in one direction to operate the levers. These bars are placed as near the center of the car as possible, and are close coupled with the bars of the next car, so that there may be no unnecessary slack between the cars that might interfere with the perfect setting of the brake on the rear end of the train; and although the sliding rods may creep in turning a curve when on the side of the train toward the outer rail of the curve, yet they will not operate the levers E E′, as the creep is "taken up" by the loose joint or chain connecting the sliding bars with the ends of the levers. The loose joint *b* also prevents the application of the brake throughout the train by hand.

Although I show my system of continuous sliding bars extended throughout the train to operate the Hodge system of levers, they are equally as adaptable in actuating the "Tanner" system of levers for setting brakes.

The sliding bars are drawn forward toward the locomotive by any suitable mechanism connected with the engine, and in this connection I mention as one way the attachment of the end of the connected series of bars with a piston operated by steam from the boiler.

The operation of my invention is as follows: The bars H I are coupled, and the set destined to be used in the direction the train is to travel is attached at its end to the piston or other engine used for applying the brake through the connected bars from the locomo-

tive. The drawing forward of the bars actuate primarily either the lever E or E′, and through them and connecting mechanism the braking force is distributed to all the wheels on the train.

I am aware that the use of a coupled sliding bar for applying brakes throughout the train connected with the locomotive is not new, and that the brakes were applied by the sudden checking of the locomotive, which caused the cars in the train to "creep" on the bar; but I am not aware that continuous connected sliding bars have been used in applying brakes throughout the train from the engine, when said bars have been actuated from the locomotive by a direct drawing power, and adapted to be used in connection with the Hodge or Tanner system of brake-levers.

I claim and desire to secure by Letters Patent—

1. The combination of the levers E E′, each of which is connected with mechanism for applying the brake-shoes to the wheels of one truck, and each of which is dependent upon the other for the application of the brake-shoes to the wheels of both trucks with the sliding bars H I and loose joint *b*, the bars being used for distributing the power from the engine in opposite directions, but each using the same system of lever and rods, substantially as described.

2. The combination of the bars H I, adapted to operate through loose joint *b*, the levers E E′, with the spring *c*, all arranged to operate as described.

JOHN RADDIN.

Witnesses:
F. F. RAYMOND, 2d,
A. J. OETTINGER.