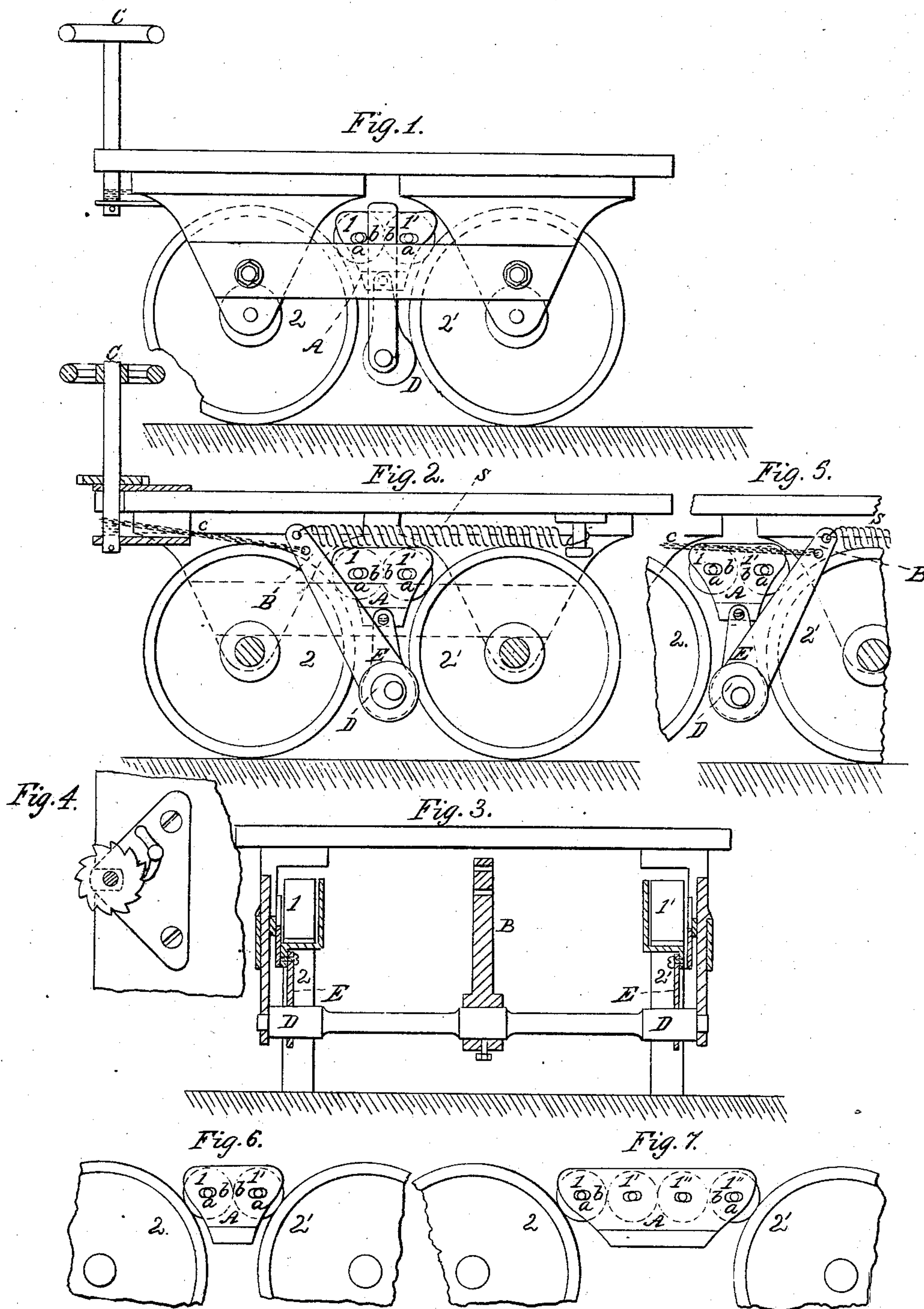


E. W. SANDFORD.

Car Brake.

No. 106,412.

Patented Aug. 16, 1870.



Witnesses:

J. B. Lawrence
Wm. Tuttle

Inventor:

Per Sanford

UNITED STATES PATENT OFFICE.

ELIJAH W. SANDFORD, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN RAILWAY-CAR BRAKES.

Specification forming part of Letters Patent No. **106,412**, dated August 16, 1870.

To all whom it may concern:

Be it known that I, ELIJAH W. SANDFORD, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Brake for Railway Cars and Carriages, and other purposes; and I do hereby declare that the following is a full, clear, and exact description thereof, in what manner it may be constructed and applied to the wheels of a railway car or carriage, and operated by mechanism under the control of the brakeman, reference being had to the accompanying drawing, and to the letters of reference marked thereon, and making a part of this specification.

Figure 1 is a side view of a truck of a rail-car with my improved brake connected therewith. Fig. 2 is a sectional view of the same, showing the brake-wheels acting upon the truck-wheels. Fig. 3 is a plan, showing the position of the brake and truck-wheels and brake-lever. Fig. 4 is a view of the ratchet-wheel and pawl for fastening the brake. Fig. 5 shows the brake and truck-wheels when the former are not acting upon the latter. Figs. 6 and 7 illustrate the use of one or two pairs of brake-wheels.

My invention consists in the use of one or more pairs of revolving wheels, which constitute the brake, the axles of which have adjustable bearings, so that the wheels can have lateral motion toward and from each other, and which are placed between two truck-wheels on either or both sides of a car, and so arranged and connected with the brake-lever that as the latter is operated such wheels will be brought in contact with the peripheries of such truck or car wheels, thereby checking their revolutions and rendering it easily possible to reverse the motion of one of such car-wheels, and thus more certainly and effectually arresting the movement of the car.

The brake-wheels 1 1' are supported on transverse bars or axles *a a*, parallel with the axle-tree of the car, and having their bearings in a frame, A, such bearings being also adjustable by means of the slots *b b*, and thus permitting such wheels to have lateral motion as the frame A and the wheels 1 1' are moved up and down by the action of the brake-lever B, operated by the brakeman at C. Such brake-wheels may be placed either above or

below the line of the axle of the truck-wheels, though I consider it preferable to place them above, as shown in the drawing.

As the brake-lever is operated by the brakeman the frame A is drawn down, when the brake-wheels are placed above the line of the car-axle, and the brake-wheels 1 1' forced against the peripheries of the truck-wheels 2 2', and with different results, according as such brake-wheels are brought more or less tightly against the truck-wheels.

If the brake-wheels are forced only moderately against the truck-wheels, the motion of the latter will be checked as by the use of the ordinary brake. If, however, they are brought against the truck-wheels with greater power, the action of such brake-wheels, by being revolved in opposite directions on their axles from contact with the truck-wheels, will be to reverse the motion of one or the other of such truck-wheels, and thereby producing a result like that effected by reversing the engine; and if such brake-wheels are forced with full power against the truck-wheels, the revolution of the latter will be wholly arrested, and they will slide upon the track. This arrangement of revolving brake-wheels thus becomes a most powerful as well as a convenient means of controlling the speed and movement of any car or train, and the power applied at the brake-wheel is much more effectual than is possible with the ordinary brake.

The brake-wheels 1 1' are operated, as shown in the drawing, by means of the brake-lever B, which is moved by a chain, *c*, winding around a spindle, C, such lever being fixed to an eccentric-shaft, D, turning in a collar, E, fixed to the frame A, in which are the bearings of the wheels 1 1'.

As the brake-lever B is drawn forward into the position shown in Fig. 2, the eccentric-shaft D, turning in the collar E, draws down the frame A and brings the brake-wheels against the peripheries of the truck-wheels 2 2'. When the spindle C is released the spring *s* carries back the lever B to the position shown in Fig. 5, thus raising the frame A and carrying the brake-wheels away from the truck-wheels.

When the truck-wheels are not very far apart only a single pair of wheels, 1 1', will be re-

quired; but where the truck-wheels are more distant from each other the brake-wheels may be doubled, as shown in Fig. 7. The effect, however, in reversing the truck-wheels will be the same in either case.

When the brake-wheels are placed below the line of the axle of the truck-wheels the mechanism operating them will be so arranged as to raise such wheels as the lever B is moved forward.

The adjustable bearings for the brake-wheels are deemed advisable, but are not considered necessary, and may be omitted.

What is claimed as new is—

A car-brake consisting of one or more pairs of revolving wheels placed between the carrying-wheels of a car, and so arranged that the peripheries of such wheels may be thrown in contact with each other, and at the same time in contact with the treads or peripheries of such carrying-wheels, substantially as and for the purposes set forth.

E. W. SANDFORD.

Witnesses:

S. D. LAW,

WM. TUTTLE.