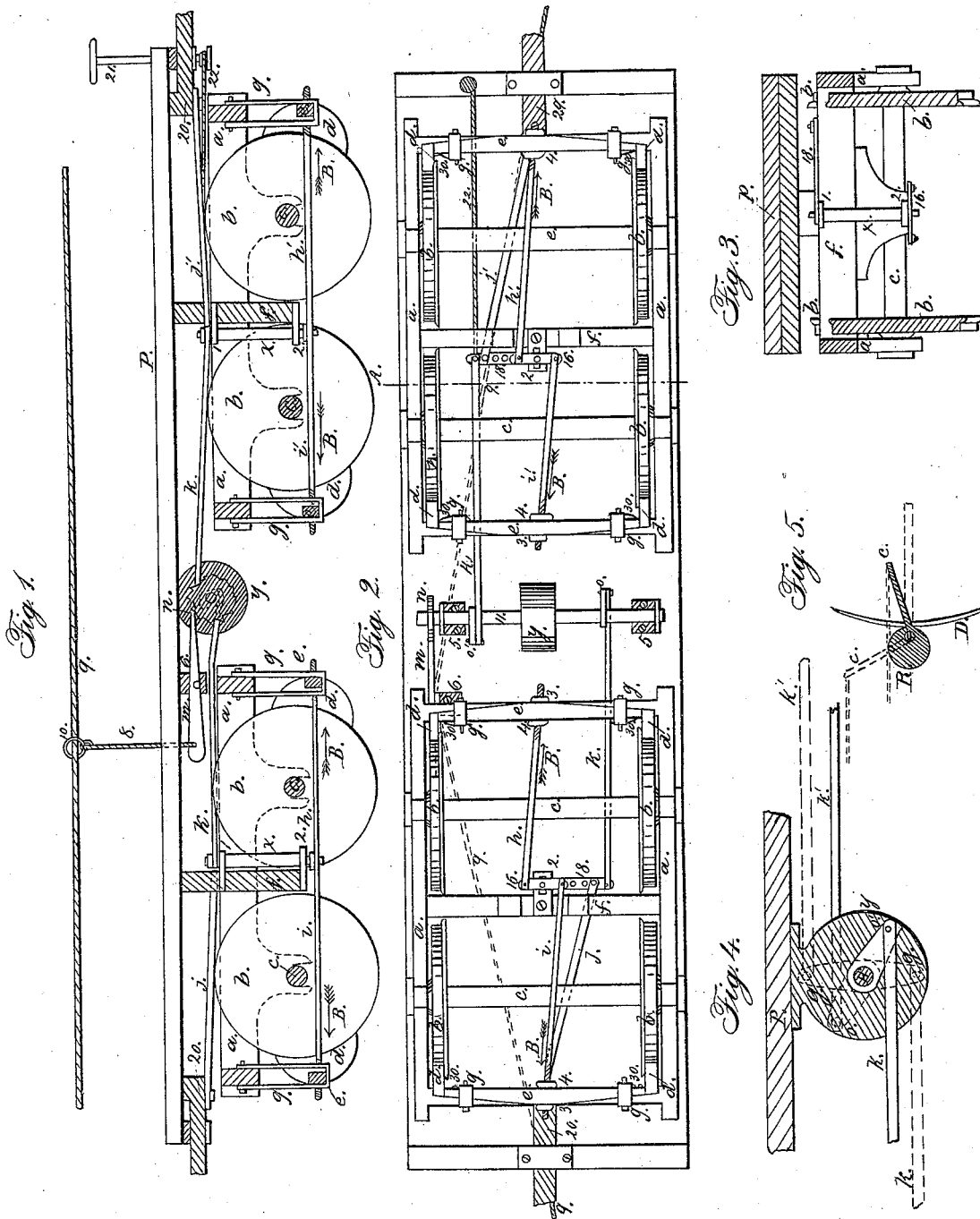


J. DAVIS.
Car Brake.

No. 55,067.

Patented May 29, 1866.



Witnesses:

James F. Johnston
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UNITED STATES PATENT OFFICE.

JOHN DAVIS, OF ALLEGHENY CITY, PENNSYLVANIA.

IMPROVED CAR-BRAKE.

Specification forming part of Letters Patent No. 55,067, dated May 29, 1866.

To all whom it may concern:

Be it known that I, JOHN DAVIS, of the city and county of Allegheny, in the State of Pennsylvania, have invented a certain new and useful Improvement in Car-Brakes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in applying brakes to the wheels of railroad-cars, so that the said brakes are made operative by the motion, action, and inaction of the locomotive and cars, whether said motion or action is given by the motive power while traveling on a level track, or by the motive power or the gravity of the cars on inclined planes of the track, said brakes always operating with relations to the wheels so that they will adjust themselves and bring the proper force to bear on the wheels when the locomotive becomes inoperative from any cause or from any undue or improper motion or action imparted to the cars, the whole being constructed, arranged, and operating in the manner herein-after described.

In the accompanying drawings, Figure 1 represents a longitudinal section of a car-truck furnished with my improvement in brakes. Fig. 2 represents a car-truck inverted, and represents the general arrangement of the various parts used in my improvement in car-brakes. Fig. 3 represents a transverse section of the car-truck cut through at line A. (See Fig. 2.) Fig. 4 represents a section of the car-truck, showing the position of the cranks of the spring-shaft when the brakes are on and off the wheels. Fig. 5 represents a combination of a cam and lever which can be used, in combination with an elliptic spring, as a substitute for the coil-spring and spring-shaft herein described.

In the accompanying drawings, *a* represents the truck-frame. *b* represents the wheels. *c* represents the axles. *d* represents the brakes. *e* represents the brake-bars. *g* represents the hangers for brake-bars. 20 and 29 represent the draw-heads or buffers. *P* represents the floor or the bottom of the car-body. All of these parts are of ordinary construction.

To the cross-bar *f* of the truck-frame *a* are secured two bearings, (marked 1 and 2,) which support the perpendicular shafts, (marked *x*), on the upper end of which are secured levers,

(marked 18,) and to the lower end are secured levers, (marked 16,) to which are attached rods marked *i* and *h* and *i'* and *h'*. The rods marked *j* and *j'* are secured to the draw-heads or buffers 20 and 29, and the rods marked *k* and *k'* are secured to cranks *o* and *o'* on the spring-shaft, (marked 11,) which is held in the desired position by means of hangers, (marked 5,) which are secured to the bottom *P* of the car-body.

To the spring-shaft 11 is attached a coil-spring in case *y*, which is secured to the bottom of the car-body, one end of the coil-spring being attached to the spring-shaft 11 and the other end to the side of the case *y*.

On the end of the spring-shaft 11 is placed ratchet-wheel marked *n*, which is connected with a pawl, (marked *m*), which is secured to the bottom of the car and is used for holding the brakes off the wheels when so desired. To the end of the pawl *m* is attached a cord, 8, which passes up the side of the car-body. On the upper end of the cord 8 is a ring, (marked 10,) through which passes a cord, (marked 9,) which passes out through the ends of the car with the bell-rope to the locomotive, so as to be under the control of the engineer.

The lower ends of the shafts *x* are placed in a slot made in the bearings marked 2, so that the shaft *x* can move back and forward with the movements of the brakes. The brakes marked *d* are held a uniform distance from the wheels by the springs 30, which are secured to the bars *e* and press against the hangers *g*.

The combination of the cam *R* and levers *C* with the elliptic spring *D* (seen in Fig. 5) can be readily substituted for the coil-spring shaft 11 and cranks *o* and *o'*, (represented in Figs. 1, 2, and 3,) and about the same results obtained as that which results from the use of coil-spring shaft and crank. Therefore I do not confine myself to the use of the coil-spring shaft and cranks for operating the rods, levers, and brakes.

The construction and arrangement of the several parts will readily be understood by reference to the drawings. Therefore I will proceed to describe the operation of my invention.

Having the various parts constructed and arranged as herein described and represented, I adjust the brakes to the wheels by means of the screw-nuts 3 and 4. I then turn the shaft 11 until the coil-spring has sufficient tension

to hold the brakes on the wheels with the force desired. I then attach the rods *k* and *k'* to the crank or levers *o* and *o'* on the shaft 11. I then couple the cars and the locomotive together in the usual manner. Now, by coupling the locomotive to the buffer or draw-head, (marked 20,) the draft of the locomotive will draw forward the rods *j* and *k* and the crank *o*, which will force back the crank *o'* and rods *k'* and *j'*, which movements of rods and cranks will move the levers marked 18, which will turn the shaft *x* and levers 16, which will move the rods *i* and *h* and *i'* and *h'* in the direction indicated by the arrows marked B, and thereby force the brake from off the wheels.

When the drawing-power is attached to the draw-head or buffer, (marked 29,) then the draft will draw forward the rods *j'* and *k'* and the crank *o'*, which will force back the rods *k* and *j* and crank *o* which will operate the levers 18 and 16, which will move the rods *i* and *h* in the direction indicated by the arrows B, and thereby force the brake from off the wheels.

When I desire to take the brakes off and hold them off, a forward motion is given to the locomotive, which will draw forward the draw-heads or buffers and operate the rods, cranks, and levers in the manner described, which will take the brakes off. I then draw the cord marked 9 forward, which will cause it to approach a straight line, and thereby draw up the line 8, which will bring the pawl *m* in contact with the ratchet-wheel *n*, and thereby hold the brakes from off the wheels.

It will readily be seen by reference to Figs. 1 and 2 that my improved brakes can be operated by the ordinary hand-lever (marked 21) and chain (marked 22,) which is attached to lever 18. By simply winding up the chain (which is the ordinary mode of bringing the brakes to bear on the wheels) it will cause the rods, cranks, and levers to operate in the manner described, and thereby take the brakes off the wheels.

The brakes are brought to bear on the wheels by the tractive power of the spring upon shaft 11 and cranks *o* and *o'*, which are connected to the rods and levers which operate the brakes.

When the brakes are off the wheels the cranks

o and *o'* are in the position represented by the dotted lines *g*, (see Fig. 4,) and when the brakes are on the wheels the cranks *o* and *o'* are in the position represented by *o* and *o'* in the same figure. By thus arranging the cranks *o* and *o'* with relation to the spring-shaft a less power will hold the brakes from off the wheels than is required to draw them off, for the leverage of the cranks *o* and *o'* are gradually increased as they approach the position represented by the dotted lines *g*, (seen in Fig. 4,) which is the position of the cranks when the brakes are held off from the wheels.

Having thus described the nature, construction, and operation of my improvement in brakes, what I claim as of my invention is—

1. Applying brakes to wheels of railroad-cars so that said brakes become operative by the action and inaction of the locomotive and cars always operating with relation to the wheels, so that they will adjust themselves and bring the proper force to bear on the wheels when the locomotive becomes inoperative from any cause, or when any undue or improper action is imparted to the cars, said brakes being constructed and arranged substantially as herein described and set forth.

2. So arranging the cranks *o* and *o'* on the spring-shaft 11 that it will require less power to hold the brakes off the wheels than is required to draw them off, as herein described and set forth.

3. The combination of the pawl *m* and ratchet-wheel *n* with the shaft 11, cranks *o* and *o'*, and coil-spring, combined, arranged, and operating substantially as herein described and for the purpose set forth.

4. The combination and arrangement of the coil-spring shaft 11, cranks *o* and *o'*, rods *j*, *k*, *j'*, and *k'*, levers 18 and 16, and shaft *x*, with the rods *i*, *i'*, *h* and *h'*, brake-bars *e*, and brakes *d*, the whole being constructed, combined, arranged, and operating substantially as herein described, and for the purpose set forth.

JOHN DAVIS.

Witnesses:

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