J. A. KIRBY.
Vehicle-Brake.

No. 205,872. Patented July 9, 1878.

Fig. 1.

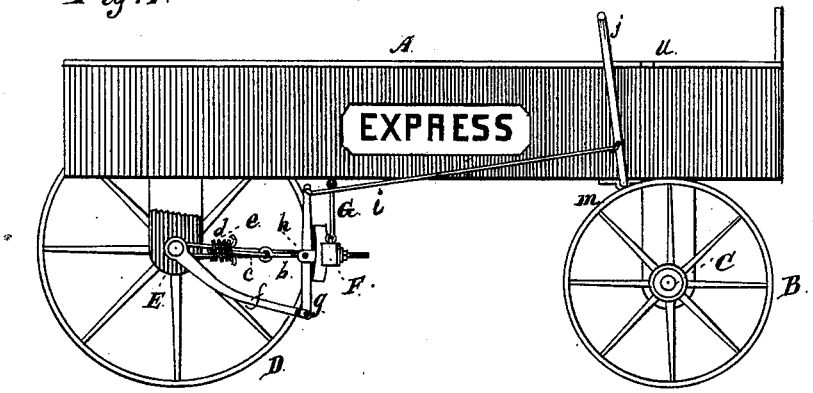
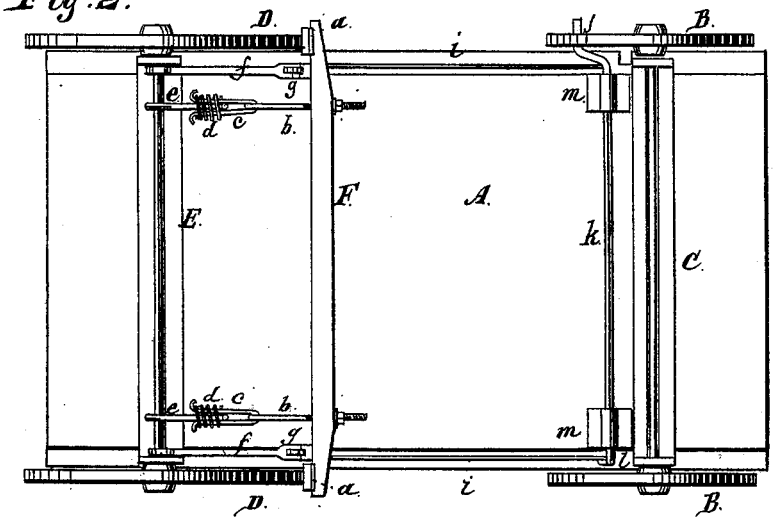


Fig. 2.



Witnesses:
H. F. Brune
O. W. Bond

Inventor:
James A. Kirby

UNITED STATES PATENT OFFICE.

JAMES A. KIRBY, OF CHICAGO, ILLINOIS, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO DANIEL J. AVERY AND JOSEPH W. TAFT, OF SAME PLACE.

IMPROVEMENT IN VEHICLE-BRAKES.

Specification forming part of Letters Patent No. **205,872**, dated July 9, 1878; application filed September 24, 1877.

To all whom it may concern:

Be it known that I, JAMES A. KIRBY, of the city of Chicago, Cook county, State of Illinois, have invented a new and useful Improvement in Brakes for Vehicles, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation with one of the rear wheels removed. Fig. 2 is a bottom view.

The object of this invention is to provide a brake to be used upon vehicles, which shall be almost instantaneous in its action, and which can be easily operated; and in its nature consists in connecting the brake-bar with the axle by means of coil-springs so arranged that the action of the springs will set or apply the brakes, suitable devices being used for keeping the brake off when the vehicle is running; and in an improved construction of the spring supports or connections.

In the drawings, A represents the body of a wagon; B, the front wheels; C, the front axle; D, the rear wheels; E, the rear axle; F, the brake-bar; G, the hangers for suspending the brake-bar from the body; *a*, the brake-shoes; *b*, the eyebolts; *c*, the loops or staples connected with the brake-bar; *d*, the springs; *e*, the loops or staples secured to the rear axle; *f*, the arms; *g*, the levers; *h*, the ears or supports for the levers *g*; *i*, the connecting-rods; *j*, the hand-lever; *k*, the rod; *l*, the crank; *m*, the bearings for the rod *k*; *u*, the notch or catch with which the lever *j* engages.

The body A, wheels B and D, and axles C and E may be of any of the ordinary forms, and the other parts necessary to make a complete wagon are to be applied; but as these parts may be of the usual construction, they are neither shown nor described.

The brake-bar F, as shown, consists of a single straight bar located beneath the body of the wagon, from which it is suspended by means of the hangers or rods G, which rods are connected to the body and bar so as to permit the bar to swing forward and back to some extent. The brake-shoes *a* may be of any suitable construction, and they are secured near the outer ends of the brake-bar at the proper point for engaging with the wheels.

The eyebolts *b*, as shown, pass through the brake-bar F, and are provided with a screw-thread, so that by means of a nut their position may be changed to give the proper tension to the coiled springs. In the eye of the bolt *b* is secured the staple or loop *c*, and another staple or eye, *e*, is secured to or around the rear axle. The staples *c e* pass inside of the coil-springs *d*, and their ends are bent outward, or otherwise provided with devices by means of which the coil-spring will be held securely in position, but so as to permit of its operation. Two coil-springs, with their connecting devices, are used, one on each side, as shown in Fig. 2.

Near the ends of the rear axle E are secured arms or bars *f*, each of which projects forward, and is curved or bent so as to be lower than the brake-bar, and to the front end of each arm *f* is pivoted the lower end of the lever *g*, which lever is pivoted near its center in ears *h*, which ears are secured to the brake-bar F. To the upper end of each lever *g* is secured a rod, *i*, which extends forward beneath or at the sides of the wagon, the forward end of one rod being secured to the hand or foot lever *j*, and the forward end of the other rod being secured to the crank *l*, both the crank and lever being located or formed on the rod *k*, which rod is supported in suitable bearings *m* secured to the bottom of the wagon-body.

A suitable device is to be provided to hold the lever, which may be a simple notch, *u*, as shown, or a pin, rack, or other devices.

In use, when the parts are in the position shown, the brake is applied. To release the brake, the driver takes hold of the lever *j* and moves it forward until it engages with the notch *u*, when the brake-bar F will be drawn forward, and with it the shoes *a*, releasing the brake. To apply the brake, all that is necessary is for the driver to release the lever *j* from the notch *u*, when the springs *d* will instantly force the shoes against the wheels.

By using springs for the power the brake will be applied the instant the lever is released, which, when sudden stoppages are required, as is sometimes the case, is very desirable.

This brake can be applied to vehicles having

four wheels by applying it to the rear wheels, or to vehicles having only two wheels, and it can be applied to all vehicles without any change in their running-gear or other parts.

I prefer to use the form of spring shown, in which the spring is contracted when the brake is not in use, as such spring will always be ready for use. A coil-spring operating by expansion might be used; but such springs are liable to be overstrained in adjusting them, and are more liable to lose part of their force by long use.

I have shown two springs, one on each side of the wagon, with devices for operating them, and such arrangement is the best; but it is evident that a single spring having more power could be used, such spring being located centrally, especially for axles on king-bolts or pivots. The position of the parts holding the spring may be changed, the eyebolt *b* being located in the axle instead of the brake-bar, and other forms of connecting-pieces than the loops *c c* may be used, such as straight rods with cross-bars, cap, or collars at the ends of the springs.

I am aware that a section of an elliptic spring placed in the rear of the axle has been used to apply brakes to wagons, and hence do not claim, broadly, the application of springs to a wagon-brake; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. The rod *k*, having the lever *j* and crank *l*, in combination with the rods *i*, levers *g*, arms *f*, and brake-bar F, operated by spring-power at each end of the brake-bar, for holding the brake-bar and shoes away from the wheels, substantially as specified.

2. The herein-described brake, consisting of the bar F, connecting-rods, and springs, in combination with the arms *f*, rods *i*, shaft *k*, and lever *j*, substantially as described.

JAMES A. KIRBY.

Witnesses:
O. W. BOND,
L. L. BOND.