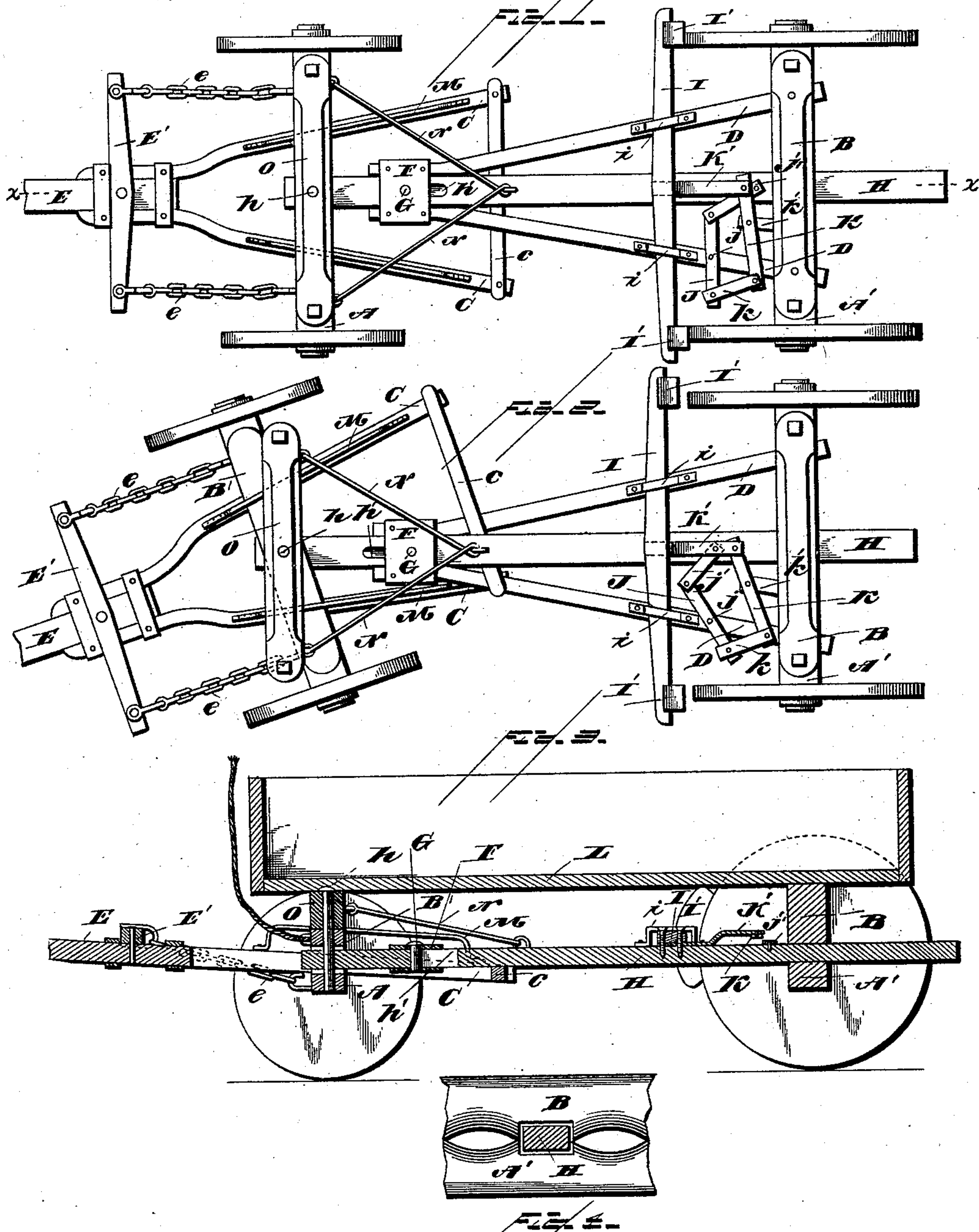


(No Model.)

J. A. DICKSON.
AUTOMATIC BRAKE FOR VEHICLES.

No. 360,954.

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AUTOMATIC BRAKE FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 360,954, dated April 12, 1887.

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To all whom it may concern:

Be it known that I, JOHN AMOS DICKSON, a citizen of the United States, residing at Pulaski, in the county of Giles and State of Tennessee, have invented a new and useful Improvement in Automatic Vehicle-Brakes, of which the following is a specification.

My invention relates to improvements in automatic vehicle-brakes; and it consists of the peculiar combination of devices and novel construction and arrangement of the various parts for service, substantially as hereinafter fully described, and particularly pointed out in the claims.

The primary object of my invention is to provide a wagon or other vehicle with an improved brake of simple, strong, and cheap construction, which shall be automatically operated when the vehicle descends a hill or declivity, so as to retard the progress of the vehicle, and which is held from operation when backing the vehicle in the usual manner, as will be fully described hereinafter.

A further object of my invention is to provide a brake with means for preventing the retrograde movement of the endwise-movable reach, so that the vehicle can be backed in a straight line, which means can be readily operated by the driver seated in the wagon, and without requiring the vehicle to be stopped.

In the accompanying drawings, which illustrate an improved automatic brake embodying my improvements, Figure 1 is a top plan view with the body of the vehicle removed and showing the brakes applied. Fig. 2 is a similar view showing the vehicle in the act of backing. Fig. 3 is a vertical central sectional view thereof on the line *x x* of Fig. 1, showing the body in position and the mechanism for preventing retrograde movement of the reach. Fig. 4 is a detached view of the rear bolster, showing how the reach is guided.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the front and A' the rear axle; B, the bolster for the rear axle, and B' the head-block mounted upon and carried by the front axle.

C designates the front hounds, which are rigidly affixed to the front axle and head-blocks, and are connected at their rear ends by a transverse bar, *c*, while D designates the rear

hounds, which are likewise connected with the rear axle and bolster and with each other by an intermediate bar, as will be very readily understood.

E is the draft tongue or pole, which is connected to the front ends of the front hounds, and which carries the double-tree E', that is connected at its ends with the front axle by means of intermediate chains, *e*, all of these devices being of the ordinary or any preferred pattern of running-gear in extensive use.

The front ends of the hind or rear hounds, D, are arranged out of contact with each other to leave an intermediate space, for a purpose presently described, and the separated ends of these hounds are connected by means of rigid metallic plates F, which are bolted or otherwise rigidly affixed to the upper and lower sides of the said hounds. A vertical guide-bolt, G, is passed through and held in these plates, and this bolt serves to guide the endwise-movable reach or coupling-pole H, which connects the front and rear axles together. The front end of the reach is pivotally connected with the front axle by means of a vertical king-bolt, *h*, and the rear end of the reach passes freely through an opening formed in the rear axle and the bolster thereon. Fig. 4 shows how the rear end of the reach is guided and held from lateral movement. This endwise-movable reach is provided at an intermediate point of its length with a longitudinal slot, *h'*, through which is passed the vertical fixed guide-bolt G, the said reach being arranged to slide freely between the separated ends of the hounds D and the fixed parallel plates connecting the front ends of the same.

I designates a sliding brake-bar, which is arranged transversely of the running-gear and immediately in front of the wheels on the rear axle. The brake-bar rests upon the rear hounds, D, which have affixed thereto by means of suitable bolts the guide-straps *i*, that serve to prevent displacement of the brake-bar and still insure its easy and ready operation, suitable shoes, I', being rigidly affixed to the ends of the brake-bar and are adapted to come in contact with the wheels on the rear axle to retard the movement of the vehicle.

J designates a horizontal primary lever, which is arranged in rear of the brake-bar and pivoted at an intermediate point of its

length to one of the rear hounds, as at *j*. The horizontal lever is pivotally connected with the endwise-movable reach by an intermediate link, *j'*, and the rear or opposite end of the lever is connected to another link, *k*, which in turn is pivoted to one end of another horizontal lever, *K*. This secondary lever *K* is arranged to one side of the lever *J*, and is likewise pivoted at an intermediate point of its length to an arm, *k'*, which is rigidly affixed to the rear bolster of the vehicle, the opposite free end of the said lever *K* being connected with the brake-bar by means of an intermediate link, *K'*, as shown.

The bolster *O* of the vehicle is swiveled or pivotally connected with the front axle by the vertical king-bolt, and on this pivoted bolster *O* and the rear bolster, *B*, rests the body or bed *L* of the vehicle.

The front hounds are braced by straps *M*, which extend over the head-blocks *B'*, and are rigidly affixed at their ends to the hounds, and within the standards of the bolsters *B* and *O* may be provided suitable wear-plates, which are designed to take up the wear caused by the wagon-bed moving back and forth. Suitable friction-rollers can, however, be substituted for the said wear-plates, as may be desired.

N designates brace or check chains or rods, which are connected with the pivoted head-block and the coupling-pole or reach, as shown, so as to maintain the said head-block in a position parallel with the rear bolster at all times to prevent the body or bed of the vehicle from becoming upset. The brace or straps *M* on the front hounds serve, while turning the wagon in order to back, to come in contact with the hind hounds, as shown in Fig. 2, and thus prevent the reach from moving backward and backing the wagon, and also prevent the wheels from coming in contact with the wagon-bed, which makes it easier to back the wagon. The ends of the braces *M* are rounded, and it is at these rounded ends of the braces that the latter come in contact with the rear hounds, (see Fig. 2,) so as to hold the brakes off the wheels while backing.

I do not wish to be limited to the use of the straps *M* to provide contact-points on the front-axle gearing to engage with the rear-axle gearing. Mere projections or pins or any form of stops will answer the purpose.

This being the construction of my improved automatic brake for vehicles, the operation thereof is as follows: When the vehicle descends a hill or declivity, the team or draft-animal holds back and forces the tongue rearwardly, thereby actuating the front axle, the hounds, and the devices connected therewith in like manner. As the front end of the coupling-pole or reach is connected to the front axle, it slides rearwardly with the same and moves freely through the space between the front ends of the rear hounds and the parallel plates connected therewith and the opening in the rear axle. The lever *J* is moved by the

operation of the reach to draw the outer end of the secondary lever toward the front end of the vehicle, and thereby draw the brake-bar toward the rear end of the vehicle to force or press its shoes into contact with the wheels of the rear axle, which retards and arrests the motion of the vehicle according to the force exerted by the shoes of the brake-bar upon the rear wheels, as is obvious. When the vehicle again reaches a level the draft on the tongue by the team pulls the front axle to its normal position, and thereby actuates the reach to operate the primary and secondary levers to release the brake-bar and its shoes from contact with the wheels, the whole operation being carried on automatically and without requiring the attention of the driver or occupant of the vehicle to manipulate a lever or other device to apply and release the brake.

When it is desired to back the vehicle without applying the brake, the team is turned around in either direction to cause the front axle to turn on the king-bolt until the braces *M* on the front hounds impinge or bear against the rear hounds to prevent the direct strain of the front axle from being exerted on the coupling-pole or reach, which will thus be prevented from movement independently of the vehicle, and the latter can thus be backed without applying the brakes. If, however, it is desired to back the vehicle in a straight line, it is necessary to employ a device for preventing the front axle from moving rearwardly with the tongue, and such a device I have shown in Fig. 2, which consists, preferably, of a rope or chain, *P*, which is connected with the front bolster and the body or bed of the vehicle, as shown. This rope can be readily connected to and disconnected from the bed by the operator or occupant seated in the vehicle and without stopping the team.

It will be seen that I provide an automatic brake, which is applied and connected wholly to the running-gear of a vehicle, and is entirely separate from the body thereof, and that the device is effective and automatic in operation, while at the same time it can be prevented from locking the wheels when it is desired to back the same. My invention is also very simple and durable in construction, and by reason of the small number and simplicity of the parts it can be manufactured for a very small sum, comparatively speaking.

The primary and secondary levers are pivoted to apply great power to the brake-bar; but the latter can be operated directly from the endwise-moving reach or coupling-pole, the levers being dispensed with in this construction. I prefer, however, to employ the levers pivoted and arranged as described, as they very materially increase the power and effectiveness of the brake. These levers, however, are, broadly, old.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an automatic brake for vehicles, the

combination, with the front and rear axles, of an endwise-movable reach or coupling-pole pivotally connected with one of the axles and supported by the other axle so as to be capable of movement without hindrance therefrom, a sliding brake-bar, and the primary and secondary levers intermediate of the reach and the brake-bar, one of the levers being connected to the reach and the other lever to the brake-bar, substantially as described, for the purpose set forth.

2. In an automatic brake for vehicles, the combination, with the front axle, the rear axle, and the hounds affixed to the rear axle, of the parallel plates connecting the front ends of the said rear hounds, the endwise-movable reach passing between the parallel plates and having the longitudinal slot, the fixed guide-bolt supported by the plates and passing through the slot of the reach, the king-bolt connecting the reach with one of the axles, and a sliding brake-bar connected with the reach, substantially as described, for the purpose set forth.

3. In an automatic brake for vehicles, the combination, with the front and rear axles, the hounds affixed to the rear axle, and the bolster pivoted upon the front axle, of the parallel plates connecting the rear hounds, the slotted reach passing through the parallel plates and pivotally connected with the front axle, the vertical guide fixed in the parallel plates and passing through the slot of the reach, the sliding brake-bar, the primary lever pivoted to one of the rear hounds and connected with the reach by an intermediate link, the secondary lever pivoted to the primary lever and the sliding brake-bar, and the check-rods inter-

mediate of the head-block and reach, substantially as described, for the purpose set forth.

4. In an automatic brake, the combination, with the front axle and its hounds, the endwise-movable reach pivoted thereto, and the rear axle having its hounds provided with a pin-and-slot connection with the reach, of the brake-bar operated by suitable connections with the reach, and the braces or straps M on the front hounds, which braces or straps are designed to come in contact with the rear hounds, as set forth.

5. In an automatic brake, the front axle, in combination with endwise-movable reach or coupling-pole, the rear axle, and the brake mechanism operated by the reach or coupling-pole, the front axle being pivoted to the reach or coupling-pole and having contact-points which when the front axle is turned to either side come in contact with the wagon-gearing and prevent the reach or coupling-pole from moving endwise, as set forth.

6. In an automatic brake, the front axle, in combination with the endwise-movable reach or coupling-pole pivoted thereto, the rear axle, the brake-bar sliding over the reach or coupling-pole, and the connecting-levers between the brake-bar and the coupling-pole or reach, to cause the movement of the brake-bar by the endwise movement of the reach, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOHN AMOS DICKSON.

Witnesses:

C. P. JONES,
DAVID JUDKINS.