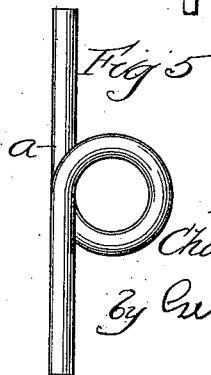
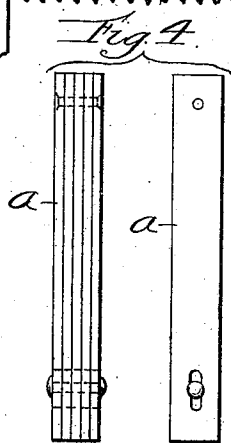
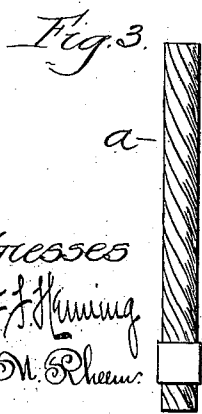
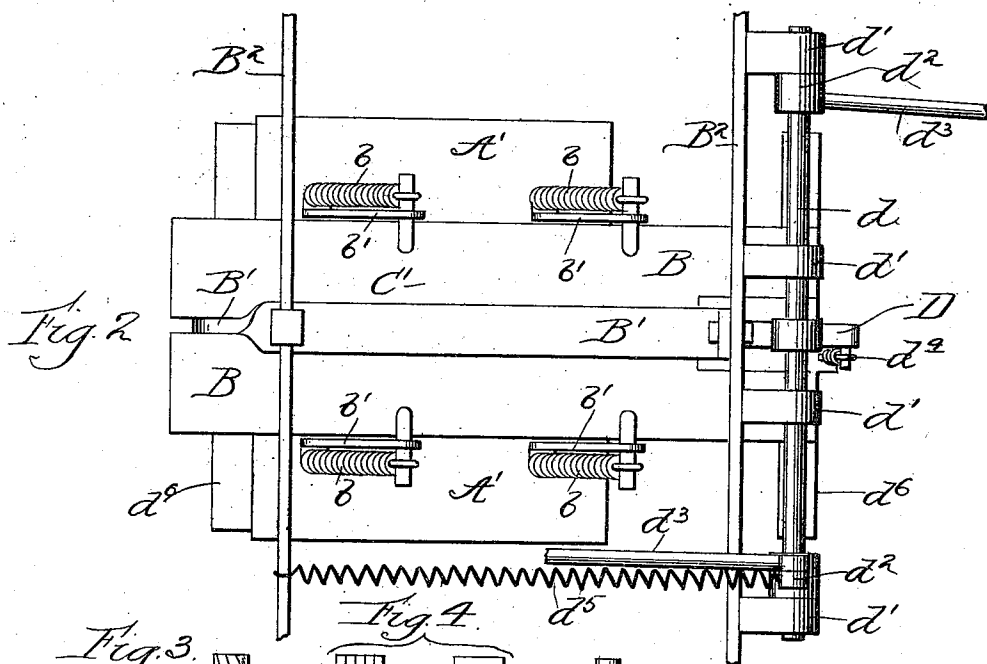
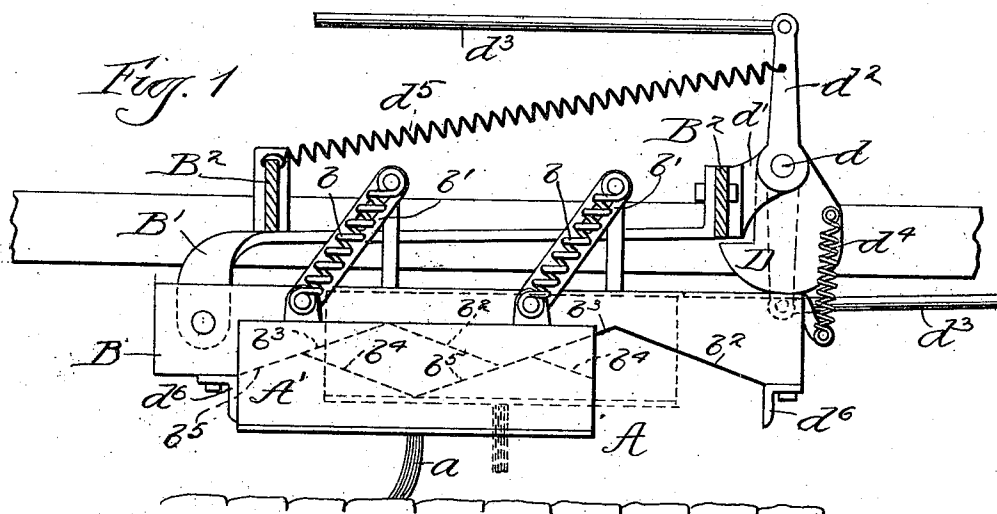


(No Model.)

C. B. FAIRCHILD.
VEHICLE BRAKE.

No. 574,868.

Patented Jan. 5, 1897..



Witnesses
Wm J. Hanning
Sp^{rs} M. P. Hanning

Inventor.
Charles B. Fairchild
By Geo. E. Waldo.

Atty.

UNITED STATES PATENT OFFICE.

CHARLES B. FAIRCHILD, OF NEW YORK, N. Y., ASSIGNOR OF ONE-EIGHTH
TO DANIEL W. BOSLEY, OF CHICAGO, ILLINOIS.

VEHICLE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 574,868, dated January 5, 1897.

Original application filed December 3, 1895, Serial No. 570,948. Divided and this application filed February 18, 1896. Serial No. 579,718. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. FAIRCHILD, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented a new and useful Vehicle-Brake, of which the following is a specification.

This invention relates to improvements in vehicle-brakes, and relates particularly to improvements in what may be termed "pavement-brakes" of the general type comprising, broadly, a brush supported upon the vehicle and adapted to be lowered and raised to depress the free ends of the brush-teeth into and to raise them out of contact with the road-bed.

The object of the present invention is to provide a brake of this type of such construction that when the free ends of the brush-teeth are brought into contact with the road-bed or pavement said brake will be applied quickly, automatically, and with desired force.

A brake embodying my invention comprises a brake-brush consisting of a rigid back in which are secured a plurality of brush-teeth; a base-block pivotally supported in permanent longitudinal adjustment upon the vehicle and in contact with which said brake-brush is supported; cam-surfaces formed on said base-block and on said brush, respectively, such that movement of said brush longitudinally of said base-block will operate to advance or retract said brush relatively to said block or support; stops to limit the longitudinal movement of said brush relatively to said block or support, and means to lower and raise the free end of said pivoted block or support to depress the free ends of the brush-teeth into and to raise them out of contact with the road-bed or pavement.

The invention also consists in the various other features, combinations of features, and details of construction hereinafter described and then pointed out in the claims.

In the accompanying drawings a brake embodying my invention is fully illustrated.

Figure 1 is a side view of a brake embodying my invention, said brake being shown as applied to the motor-car of an electric street-

railway. Fig. 2 is a top plan view thereof, and Figs. 3, 4, and 5 show different forms of brush-teeth.

Referring now to the drawings, A designates as a whole a brake-brush which is substantially identical in construction with the brake-brush heretofore fully described in an application for Letters Patent filed by me on the 3d day of December, 1895, Serial No. 570,948, and which comprises, essentially, a rigid back A', in which are secured a plurality of brush-teeth *a*.

In the preferable form of the brake-brush A the brush-teeth *a* are resilient and are made from strands of cable-wire drawn to a mild spring-temper. My invention, however, contemplates the use of rigid teeth, either alone or together with resilient teeth, and also contemplates the use of other forms of resilient teeth, all as fully disclosed in an application for Letters Patent of the United States filed by me in the Patent Office on the 3d day of December, 1895, Serial No. 570,948.

In the drawings I have shown my improved brake as applied to the motor-car of an electric street-railway, said brake being placed at the middle of the car.

The brake-brush A is maintained in contact with a block or support B, pivoted adjacent to one end to a rod or bar B', rigidly secured to the transverse bars B² of the truck-frame, said brush being supported in such manner as to render it movable relatively to said block or support B. As shown, coiled tension-springs *b* are used to so hold said brake-brush in contact with said block or support, the ends of said springs being connected to said brush and to said block or support, respectively.

Movement of the brake-brush A relatively to the block or support B is limited by links *b'*, pivotally connected at one end to said brake-brush, and slots in the other ends of which engage pivot pins or studs secured in said block or support. As shown, the springs *b* and the links *b'* are connected to the same pins or studs.

Formed on the contacting-surfaces of the block or support B and of the brake-brush A are cam-surfaces, such that movement of said

brush longitudinally of said block or support will operate to advance said brush toward or to retract it from the road-bed relatively to said block or support. As shown, duplicate
 5 sets of regularly-inclined surfaces b^2 b^3 are formed on said block B, corresponding oppositely-inclined surfaces b^4 b^5 being formed on the brush A. The pitch of the said inclined surfaces is about one inch vertically to three
 10 inches longitudinally.

In the preferable construction shown also the block or support B is fitted to a channel formed in the upper surface of the brake-brush A, the cam-surfaces on said brush being formed at the bottom of said channel.
 15 The block or support B will thus operate in an obvious manner to maintain said brush A from lateral displacement.

In order to provide for longitudinal movement of the brake-brush A relatively to said block or support B, said brush is made shorter than said block or support, the difference in length being such that the brush, being at the middle of the block lengthwise, may move in
 25 either direction a sufficient distance to depress said brush about two inches relatively to the block or support B. With inclined surfaces having a pitch of one inch in three said brush will be about twelve inches shorter than the inclined surfaces on said block or support.
 30 The length or lengths of the respective inclined surfaces is from two to three inches more than the maximum travel of the brake-brush from its middle position on said block or support longitudinally thereof. Said brush
 35 will therefore always be supported at both ends.

The springs b operate to maintain the brake-brush A normally at the middle of the block or support B, and thus at the middle of its travel. Said springs also operate to maintain said brush normally at the limit of its retraction relatively to the block or support B.

Keyed to a shaft d , mounted in suitable brackets d' , secured to one of the frame-bars B^2 of the truck-frame above the free end of the block or support B, is a cam-block D, the cam-surface of which bears upon the top of said block or support and will operate to depress the free end thereof when said block D is rotated in the proper direction.

Rigidly secured to the shaft d are lever-arms d^2 , connected by brake-rods d^3 to brake-levers (not shown) mounted on the car-platforms at opposite ends of the car.

The block or support B being in raised position, a thrust on either of said brake-rods d^3 will obviously operate to rotate the cam-block D in the proper direction to depress the free end of the block or support B. The free end of said block or support B is also connected by a link d^4 with said cam-block D in such manner that when said cam-block is rotated so as to relieve the pressure on said cam-block or support said block or support will be raised thereby. In the preferable construction shown the link d^4 is a spring-link,

as thereby the fine proportions of parts which would be necessary if a rigid link were used are avoided. As shown, the block or support B is in depressed position.

A coiled tension-spring d^5 , applied to the end of one of the lever-arms d^2 , as clearly shown, operates to rotate the cam-block D in proper direction to relieve the pressure on the free end of the block or support B when the brake is released and through the medium of the link d^4 to raise the free end of said block or support B and to maintain it normally raised and inoperative.

Longitudinal movement of the brake-brush A relatively to the block or support B is limited by stops d^6 , which, as shown, consist of angle-plates rigidly secured to said block or support B in the path of travel of said brush. Said stops also operate to support said brush against the end thrust due to the application of the brake.

The operation of my improved brake is as follows: The block or support B being in its normal retracted position, in which position the brake-brush A, carried thereon, is above the pavement, and it being desired to apply the brake, the operator, by means of either of the brake-levers on the car-platforms, the brake-rod d^3 , and the lever-arm d^2 , corresponding thereto, rotates the shaft d , so that the cam-block D will depress the free end of the block or support B until the free ends of the brush-teeth a come into contact with the road-bed or pavement. The resistance offered to the passage of the said brake-brush along the road-bed or pavement operates automatically to impart longitudinal movement to said brake-brush relatively to said block or support B, whereby said brush will be farther depressed into forcible engagement with the road-bed or pavement and the car stopped.

The brake is released by relieving the strain on the operating-lever, when the spring d^5 will operate to rotate the shaft d and through the medium of the spring-link d^4 to raise the free end of the block or support B, so that the free ends of the brush-teeth are raised out of engagement with the road-bed or pavement, when the springs b retract said brush to its normal position at the middle of the block or support B.

This application is filed as a division of an application for Letters Patent of the United States, filed by me in the Patent Office on the 3d day of December, 1895, Serial No. 570,948, in which a brake embodying my present invention is shown and described, but not claimed.

Certain features of my improved brake herein fully disclosed are claimed in an application for Letters Patent of the United States executed of even date and filed in the Patent Office concurrently herewith, and are for that reason not claimed herein.

I claim—

1. In a vehicle-brake, the combination of a brake-brush, consisting of a rigid back in

which are secured a plurality of brush-teeth, a pivoted block or support, springs connecting said block or support and said brush, whereby said brush is maintained in movable
 5 contact with said block or support, cam-surfaces formed on said brush and on said pivoted block or support, respectively, such that movement of said brush, longitudinally of
 10 said support, will operate to advance or to retract said brush, relatively to said block or support, stops to limit the longitudinal movement of said brush relatively to said block
 15 or support and means to lower and raise the free end of said block or support, to depress the free ends of the brush-teeth into and to raise them out of contact with the road-bed or pavement, substantially as described.

2. In a vehicle-brake, the combination of a brake-brush, consisting of a rigid back in
 20 which are secured a plurality of brush-teeth, a pivoted block or support, springs connecting said block or support and said brush, whereby said brush is maintained in movable
 25 contact with said block or support, cam-surfaces formed on said brush and on said pivoted block or support, respectively, such that movement of said brush, longitudinally of
 30 said support, will operate to advance or to retract said brush, relatively to said block or support, stops to limit the longitudinal movement of said brush relatively to said block or
 35 support, a cam-block applied to the free end of said pivoted block or support and adapted to depress the same to bring the free ends of the brush-teeth into contact with the road-bed or pavement and a link connecting said cam-block with the free end of said pivoted block or support, whereby the free end of said block or support will be raised to raise

the free ends of the brush-teeth out of contact with the road-bed or pavement, as the cam-block is actuated to relieve the pressure on said block or support, substantially as described. 40

3. In a vehicle-brake, the combination of 45 a brake-brush, consisting of a rigid back in which are secured a plurality of brush-teeth, a pivoted block or support, springs connecting said block or support and said brush, whereby said brush is maintained in movable 50 contact with said block or support, cam-surfaces formed on said brush and on said pivoted block or support, respectively, such that movement of said brush, longitudinally of said support, will operate to advance or to 55 retract said brush, relatively to said block or support, stops to limit the longitudinal movement of said brush relatively to said block or support, a cam-block applied to the free end of said pivoted block or support and adapted 60 to depress the same to bring the free ends of the brush-teeth into contact with the road-bed or pavement and an elastic link connecting said cam-block with the free end of said pivoted block or support, whereby the free 65 end of said block or support will be raised to raise the free ends of the brush-teeth out of contact with the road-bed or pavement, as the cam-block is actuated to relieve the pressure on said block or support, substantially 70 as described.

In testimony that I claim the foregoing as my invention I have hereunto set my hand this 8th day of February, 1896.

CHARLES B. FAIRCHILD.

Witnesses:

F. C. CRITTENDEN,
 GRACE FERN.