

(No Model.)

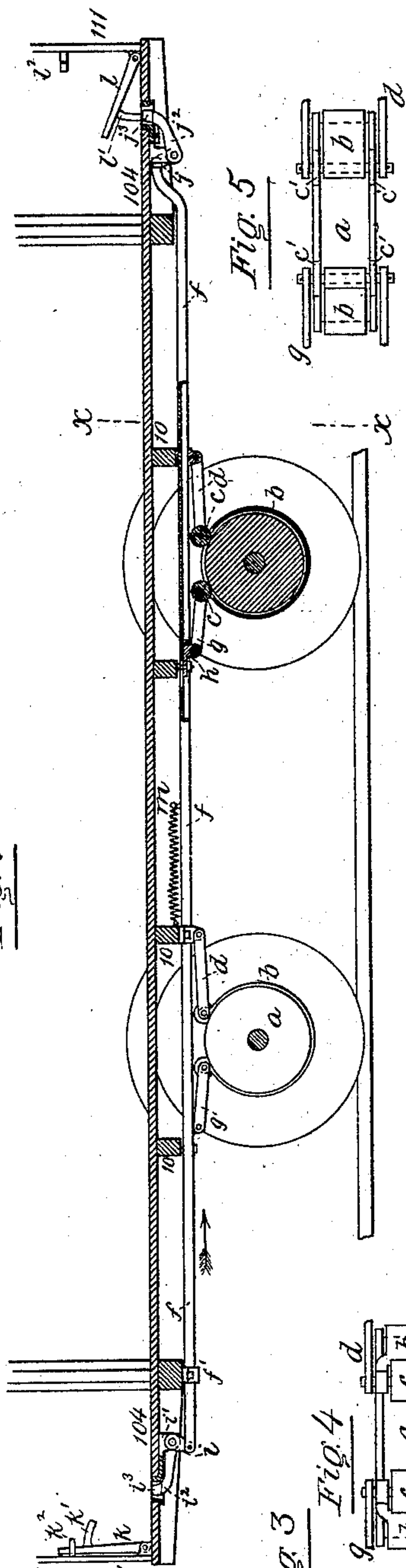
C. W. STRINGHAM.

CAR BRAKE.

No. 310,965.

Patented Jan. 20, 1885.

Fig. 1



Witnesses
H. D. Williams
L. W. Tracy

Fig. 3

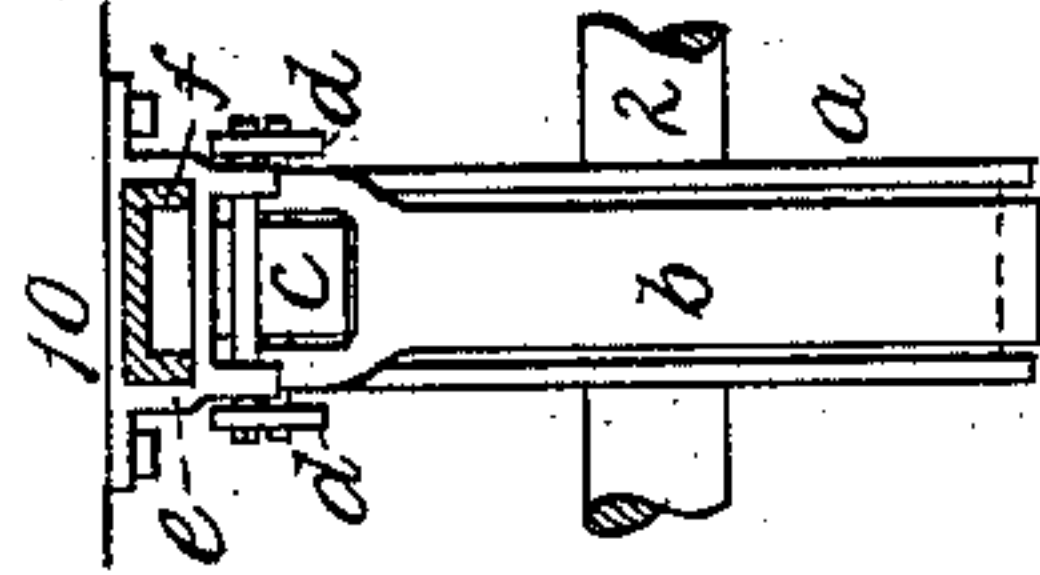


Fig. 4

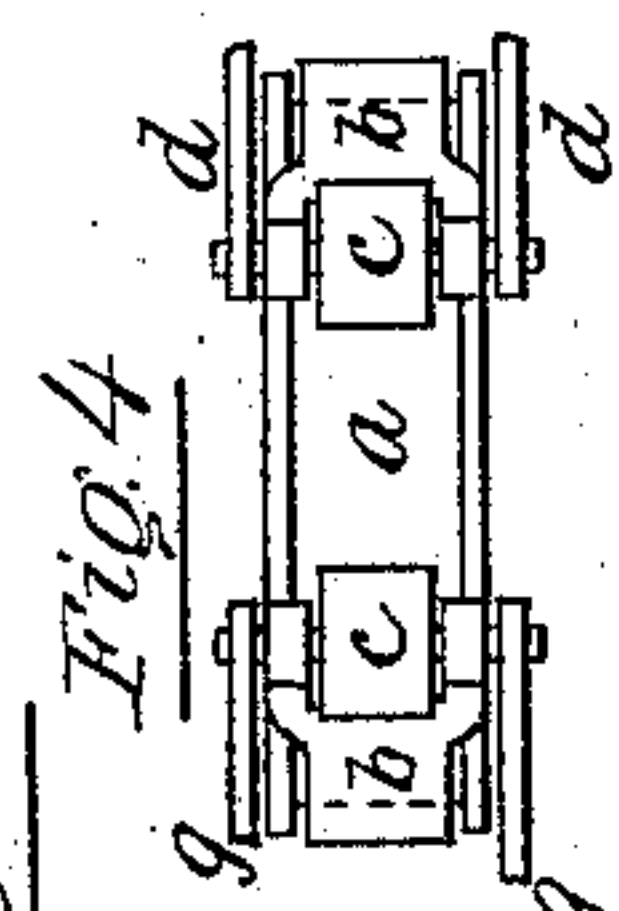
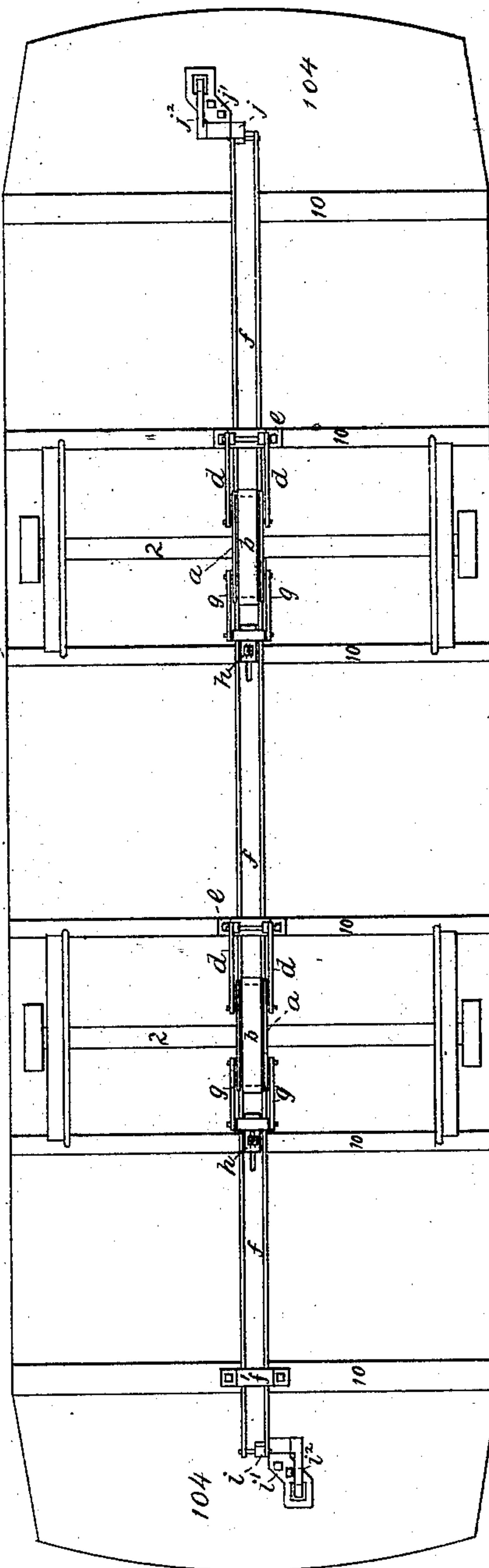


Fig. 2



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per Inventor
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UNITED STATES PATENT OFFICE.

CHARLES W. STRINGHAM, OF BROOKLYN, NEW YORK.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 310,965, dated January 20, 1885.

Application filed May 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. STRINGHAM, a citizen of the United States, and a resident of Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in Car-Brakes, of which the following is a specification.

This invention relates to car-brakes for street-cars, or that class of cars in which the axle-bearings are fastened to the car-body; and it consists of certain novel improvements in the construction of the brake apparatus by which the power is applied thereto by the foot of the driver, leaving his hands free to permit of the better performance of his arduous duties. It also embraces the substitution for the ordinary brake-shoes and the attendant complicated system of levers, of brake-drums secured to the axles, and bands surrounding the same, connected to and actuated by a bar placed longitudinally under the center of the car-body, in communication with treadles located at the ends of the cars.

In the accompanying drawings, forming part of this specification, Figure 1 is a longitudinal section of the lower part of a street-car, showing my improved brake apparatus applied thereto. Fig. 2 is a view looking toward the bottom of the car. Fig. 3 is a front view of one of the brakes, on the line *x x*. Fig. 4 is a top view of the same, and Fig. 5 is a similar view showing a modification.

To each of the axles 2 2, at the central part thereof, is secured a brake-drum, *a*, provided with side flanges to hold the brake-bands *b b* in position thereon. The bands *b b* have rollers *c c* fitted so as to rotate freely on bolts or pins passed through eyes formed in their ends. These rollers rest on the brake-drums *a a*, and support the bands *b b* clear of the drums when the brakes are open, their object being to avoid frictional contact between the drums and bands at such times. These brake drums and bands, being carried by the axles, have no vertical play, and as the bands have to be operated from the car-body, which varies in its distance from the axles according to the load carried, one end of each of the brake-bands is held and controlled by the links *d d*, which at one end fit over the bolt or pin of the roller *c*, and are

pivoted at the other end to the bracket *e*, secured to one of the transverse floor-timbers 10 of the car-body. These links *d d*, when in their mean positions being horizontal, permit of vertical play between the car-body and axles without materially changing the positions of the ends of the bands *b b*, which they control relatively to the axles. The free ends of the brake-bands *b b* are connected to the longitudinal bar *f*, which is preferably made of channel-iron, as being light and strong, by means of the links *g g*, which act in a similar manner to the links *d d*, to permit of vertical play between the bar *f* and the brakes, said bar being fitted to slide longitudinally in bearings in the brackets *e e* and plate *f'*, secured to the transverse floor-timbers 10 10. The ends of the links *g g* connected to the bar *f* are pivoted in the blocks *h h*, which are fastened to the bar by bolts passing through slotted holes therein, thereby providing a means for adjusting the brake-bands so as to properly grip the drums *a a* in first applying the apparatus to cars, and to adjust the same as the parts become worn.

To cause the brake-bands *b b* to grip the drums *a a*, the bar *f* has to be moved in the direction indicated by the arrow, and said bar has in some cases to be operated from both ends of the car. To accomplish this, one end of the bar *f* is pivoted to the short arm of a bell-crank comprising a downwardly-projecting arm, *i*, secured on the end of a shaft fitted in the casting *i'*, secured to the platform 104, and arm *i''*, fastened to the other end of this shaft. This arm *i''* is provided with a stud, *i'''*, arranged to be about flush with the top of the platform when the brakes are open. A similar bell-crank system composed of the short arm *j*, bearing casting *j'*, and long arm *j''*, with stud *j'''*, is connected to the other end of the bar *f*, which is bent upward so as to connect to the short arm *j*, which in this case extends upwardly, as shown, or is placed in a reversed position to that occupied by the other one, so that when the outer ends of either of the long arms *i''* or *j''* are depressed the bar *f* is moved in the same direction to tighten the bands *b b* on the drums *a a*, as indicated by the arrow.

To depress the outer ends of the long arms i^2 and j^2 , treadles k and l , which are hinged at the junction of the dash-guard 111 and platform 104, are respectively provided with studs or projections k' and l' , which come in contact with the stud i^3 or j^3 of the bell-cranks, and so tighten the brake-bands on the drum when the weight of the driver or brakeman is applied to the one of the treadles in use. As a rule, only one of the foot-treadles will be in use at one time; the other one would then be in the way if left in its operative position. To guard against this inconvenience, they are adapted to be moved up flat with the dash-guard, and be there held by means of a hook or button, k^2 or l^2 , so that the platforms are then clear, as the studs on the bell-cranks never project above the same. The treadle l is shown in use, and the other one, k , locked in position out of use against the dash-board.

To hold the brakes open, a spring, m , is fastened to the bar f and the body of the car. A spiral spring is shown in the drawings; but any form of spring may be used and applied to any of the working parts, so as to move the bar in the opposite direction to that indicated by the arrow.

Instead of the ends of the brake-bands b being supported on the brake-drums a by means of a roller, c , fitted between two eyes formed in them and resting on the body of the drum, as shown in the principal views of the drawings, they may each be supported by two small rollers, c' c' , rotating on the bolt, which passes through the end of the band b , turned over to form an eye to hold the bolt, said rollers resting on the peripheries of the flanges of the drum, as shown at Fig. 5.

It is evident that the sliding bar can be operated to apply the brake-bands b to the drums a by other means than by the foot-levers or treadles k and l —as, for instance, it may be connected to the ordinary hand-brake shaft by means of a chain; so I do not wish to confine my invention to the combination of the foot-levers with the form of brake described.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a car-brake, in combination, a foot-

lever or treadle pivoted on the platform of the car, and adapted to be moved up against the dash-guard out of the way when not in use, a bar placed longitudinally under the car, a bell-crank lever pivoted to the end of the bar, by which it is actuated by the foot-lever, a brake band or bands secured at one end to the bar and at the other end to the body, and a drum or drums secured to the axle or axles, and embraced by the brake-bands, substantially as and for the purpose set forth.

2. In a car-brake, the combination, with a drum secured to the axle, of a band surrounding the drum, and anti-friction supporting-rollers on the ends of the band, by which the same is supported on but held clear of the drum when the brake is open, substantially as and for the purpose set forth.

3. In a car-brake, in combination, the foot-lever k , provided with the stud k' , and pivoted to the platform, the hook or button k^2 , for holding the foot-lever against the dash-guard, and the lever or arm of the brake mechanism, provided with the stud i^3 , projecting into a hole through the platform, substantially as and for the purpose set forth.

4. In combination, the sliding brake-bar f , the bell-crank i i^2 i^3 , connected to end thereof, and the inverted bell-crank j j^2 j^3 , connected to the other end thereof, the pivoted foot-levers or treadles k and l , and the spring m , substantially as and for the purpose set forth.

5. In combination, the drum a , the band b , the rollers c c , the links d d , the links g g , and sliding bar f , substantially as and for the purpose set forth.

6. In combination, the foot-lever k , with projecting stud k' , the bell-crank i i^2 , having stud i^3 on arm i^2 , and the sliding bar f , connected to the other arm, i , substantially as and for the purpose hereinbefore set forth.

In testimony whereof I have hereunto set my hand, at New York, county and State of New York, this 22d day of May, A. D. 1884.

CHARLES W. STRINGHAM.

Witnesses:

H. D. WILLIAMS,
ALFRED SHEDLOCK.