

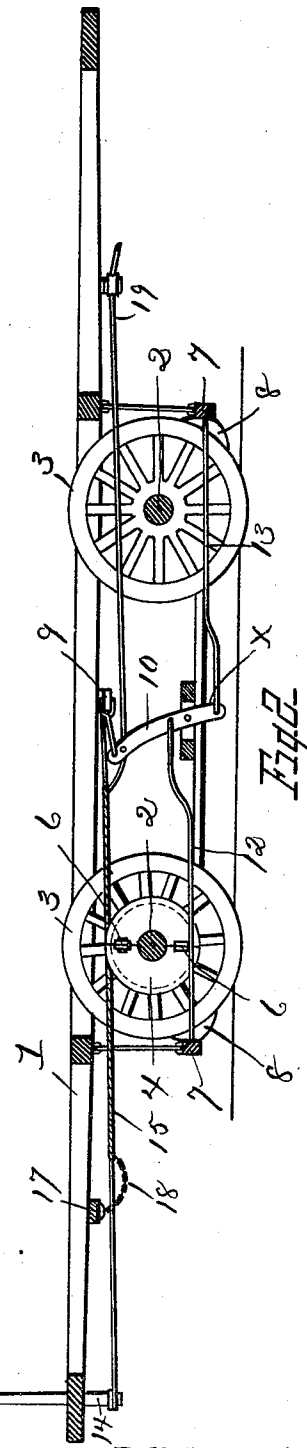
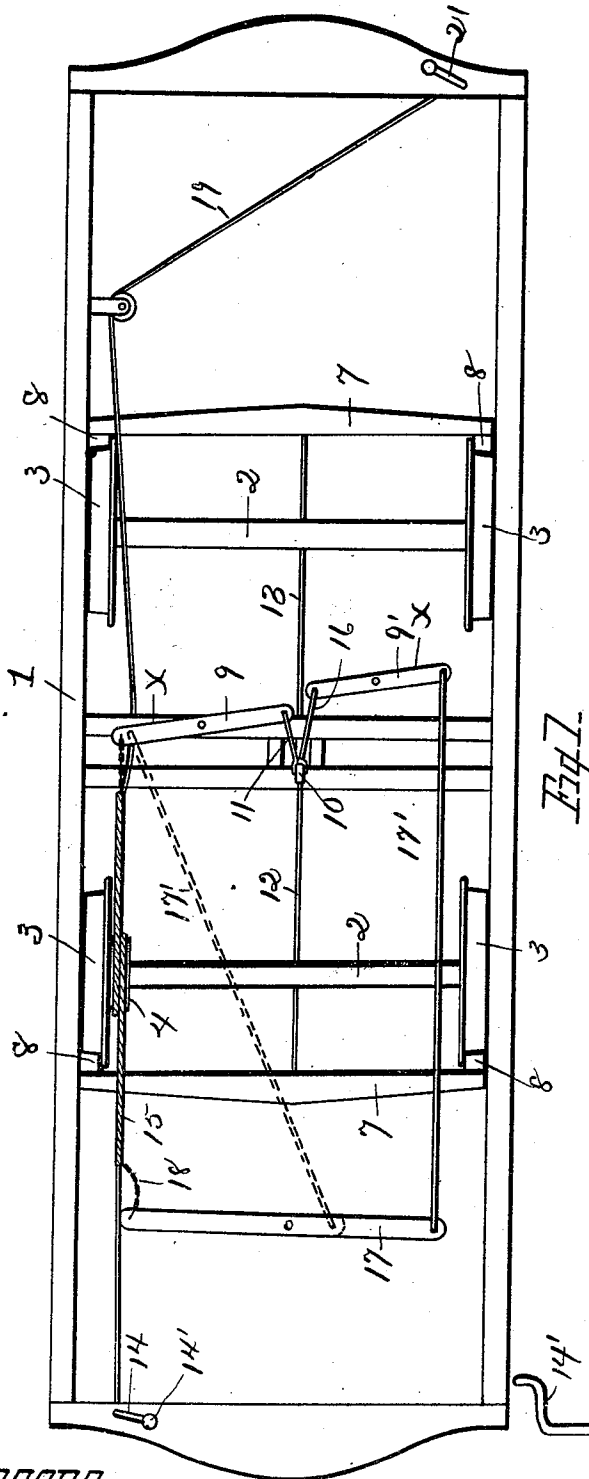
(No Model.)

2 Sheets—Sheet 1.

F. E. GILLING.
CAR BRAKE.

No. 518,401.

Patented Apr. 17, 1894.



WITNESSES

Carroll J. Webster
Floyd R. Webster

INVENTOR

Frank E. Gilling
By William Webster
att'y

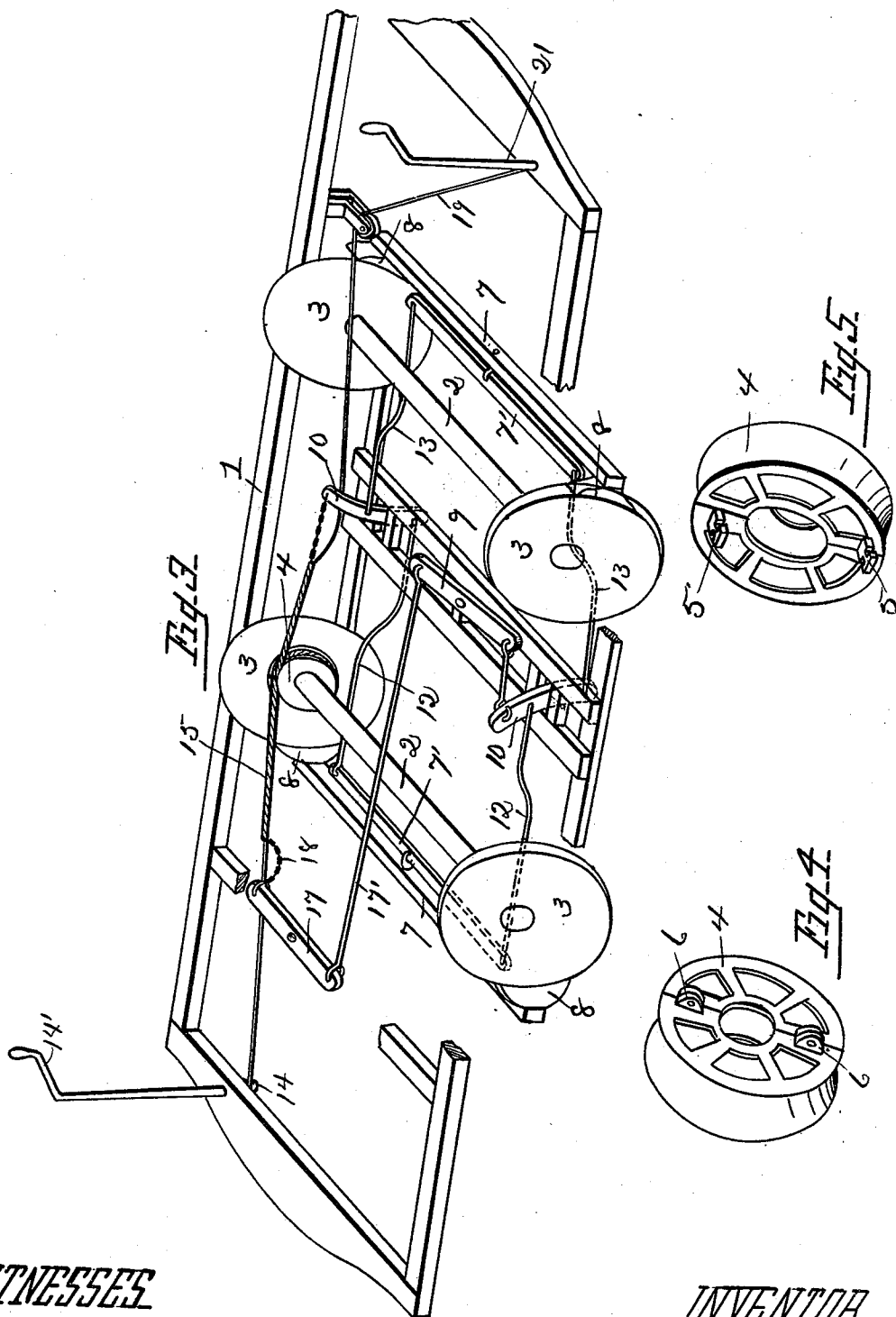
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UNITED STATES PATENT OFFICE.

FRANK E. GILLING, OF TOLEDO, OHIO, ASSIGNOR OF TWO-THIRDS TO FRANCIS M. OLIVER AND FREDERICK J. SHOVAR, OF SAME PLACE.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 518,401, dated April 17, 1894.

Application filed August 18, 1893. Serial No. 483,447. (No model.)

To all whom it may concern:

Be it known that I, FRANK E. GILLING, of Toledo, county of Lucas and State of Ohio, have invented certain new and useful Improvements in Car-Brakes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form part of this specification.

My invention relates to a car brake, having especial relation to brakes for cars electrically or otherwise propelled, in cities for the transportation of passengers from one point of the city to another.

The object of the invention is to provide convenient means for utilizing the inertia of the car for applying the brake, with an adaptation for use with the car traveling in either direction.

The invention consists in the parts and combination of parts hereinafter described and pointed out in the claims.

In the drawings: Figure 1 is a top plan view of the bottom frame of a car, showing the brake mechanism in position. Fig. 2 is a longitudinal vertical section through the center of Fig. 1. Fig. 3 is a plan view showing my improvements applied to a present form of brake mechanism. Fig. 4 is an elevation showing the front side of a separable sheave for attachment to the car axle, and Fig. 5 is a like view showing the rear side.

1 designates the frame work of the bottom of the car, 2 the car axles, and 3 the wheels. Upon one of the axles is secured a sheave 4, which, for attachment to cars already constructed, is preferably formed of two parts for convenient attachment to the axle, in which event the sheave is caused to turn with the axle by frictionally claspings the same thereon, and may be connected with the wheel by means of legs 5 which engage with the spokes, or pass through the web of the wheel, if solid, or the lugs may be omitted, and ordinary clamps employed. Sheave 4 is preferably clamped to the axle by means of bolts passed through ears 6 formed on the inner side of each section.

7 designates the brake beam, one upon each end of the car, to which the shoes 8 are secured, and which are mechanically caused to bear frictionally upon the wheels with any desired pressure.

I will now describe a preferred mechanism for mechanically applying the brakes, which comprise two bars 9 and 9', each centrally pivoted upon the frame, and connected at their inner ends with a vertical lever 10 pivotally fulcrumed near the lower end by means of rods 11 and 16, and the lever 10 connected with each brake beam by means of a rod 12 secured in lever 10 above the fulcrum point, and to the brake beam of one end of the car, and a rod 13 secured in the lower end of lever 10 below the fulcrum point, and to the brake beam upon the opposite end of the car. Bar 9 is connected at the outer end with the revoluble brake rod 14 upon one end of the car, through the medium of a rope or cable 15 which is wrapped preferably once around the sheave 4, and of a length to be normally slack upon the sheave to avoid sufficient frictional contact therewith to set the brake.

The arrangement of the opposite bar 9' is as follows: The inner end is connected with lever 10 by a rod 16, and the other end with the end of a bar 17 which is fulcrumed centrally, through the medium of a rod 17' connected with each end, the opposite end of bar 17 having a flexible connection 18 secured to rope or cable 15, and normally slack, there being a rope or cable 19 connected with the revoluble brake rod 21 upon the opposite end of the car, and with rope or cable 15, and normally slack. With this construction it will be understood that the brakes may be operated equally as well from either end, and to more fully demonstrate this fact, I will explain the operation from each end, designating the bottom of the sheet the front, and the top of the sheet the rear of the car, the car being in forward motion. It being desired to apply the brakes, the motorman revolves the brake rod 14 by turning the usual crank arm 14', and draws the rope or cable 15 taut upon sheave 4, when the revolution of the wheels and axle will cause the rope or cable to draw upon the outer end of bar 9, thereby moving the inner end oppositely, and drawing upon

the upper end of lever 10 through the medium of rod 11, will exert a rearward pull upon rod 12, and set the forward brake, and a forward pull upon rod 13 and set the rear brake. If the car is going in the opposite direction, revolving brake rod 21 will draw rope or cable 15 frictionally upon sheave 4, and cause the same to be actuated by the sheave to draw upon connection 18, the outer end of bar 17, rod 17', the outer end of bar 9' and rod 16, thereby pulling lever 10 as before, setting the brakes. It will be evident that where but a single motor is employed thereby relieving the end of the car of this obstruction, I may greatly simplify the construction by dispensing with bar 9' and rod 16, and connect rod 17' (shown in dotted lines, Fig 1) with the outer end of bar 9 and with bar 17 with the same effect.

In Fig. 3 I have shown the adaptability of my invention to cars having the usual construction of brake, in which the brakes can only be set from one end of the car, in which by my attachment, the brakes may be set from either end of the car. In this construction rope or cable 15 is connected with vertical lever 10 upon one side of the car, which is centrally pivoted and connected by means of rods 12 and 13 to the front and rear cross trees 7' which are connected with the front and rear brake beams respectively, whereby, when the car is moving forward, a turn upon the brake rod 14 will cause rope or cable 15 to be put in tension upon sheave 4, and drawing upon lever 10, set the brakes. The arrangement of the opposite end is as follows: A turn upon brake rod 21 will put rope 15 in tension upon the sheave 4, and cause a pull upon pivot bar 17, rod 17', bar 9, and a second or duplicate lever 10 drawing upon duplicate rods 12 and 13, and set the brakes.

It will be seen that I have provided for not only setting the brakes in either direction, but for adaptability to cars of different construction or brake mechanisms of forms. I

have also provided a mechanism in which the brakes of trailer cars may be readily controlled from the motor car, as the bar or connection may be made directly from the trailer brake mechanism either to lever 10 below the fulcrum, or to either lever 9 or 9' at *x*.

What I claim is—

1. In a car brake, a friction drum upon the axle, a rope or cable coiled around the same, brake actuating mechanism connected with the rope or cable by flexible connections attached to the brake mechanism upon each side of the friction drum, and normally slack, and connections with the rope or cable and each brake rod upon the car.

2. In a car brake, a friction drum upon the axle, a rope or cable coiled around the drum and connected with the front and rear brake rod respectively upon the car, the brake beams and shoes, a vertical pivoted lever connected with the brake beams, and a centrally pivoted lever connected with the rope or cable and with the vertical lever, the connections with the rope or cable being normally slack.

3. In a car brake, a vertical lever pivotally connected with the car frame, brake beams upon the front and rear of the car respectively, connections from the vertical lever to the brake beams, one connection above and one below the pivot, a friction drum or sheave upon the car axle, a rope or cable coiled around the same, and connected with the front and rear brake rods, a pivoted lever upon the car frame connected with the vertical lever at one end and with the rope at the opposite end, the connection being normally slack.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

FRANK E. GILLING.

Witnesses:

WILLIAM WEBSTER,
F. K. WEBSTER.