

(No Model.)

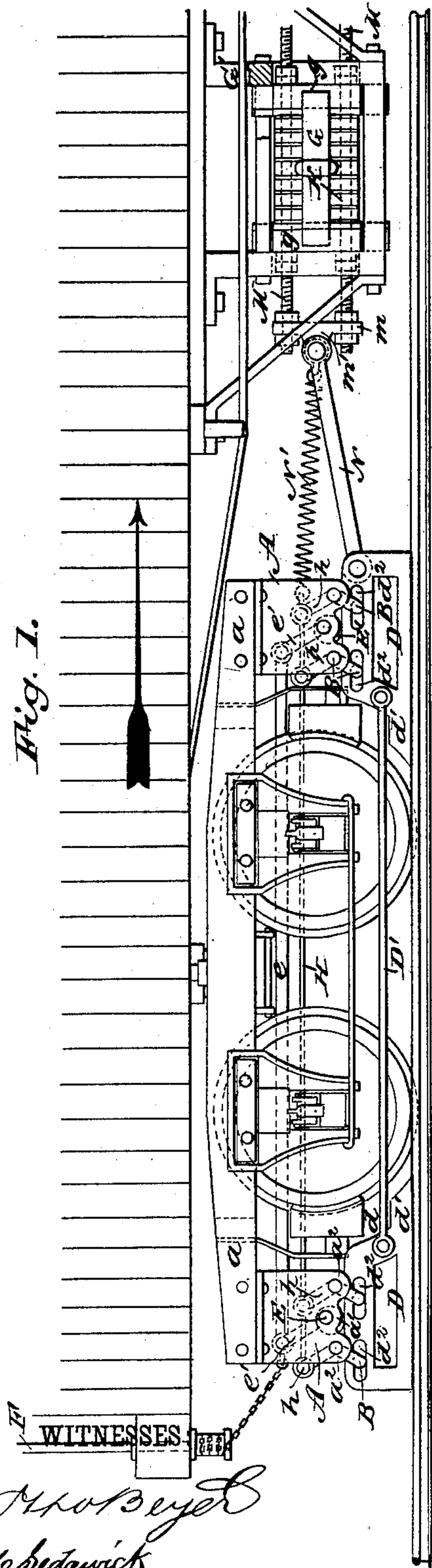
2 Sheets—Sheet 1.

L. J. ZIMMERMANN.
CAR BRAKE.

No. 367,573.

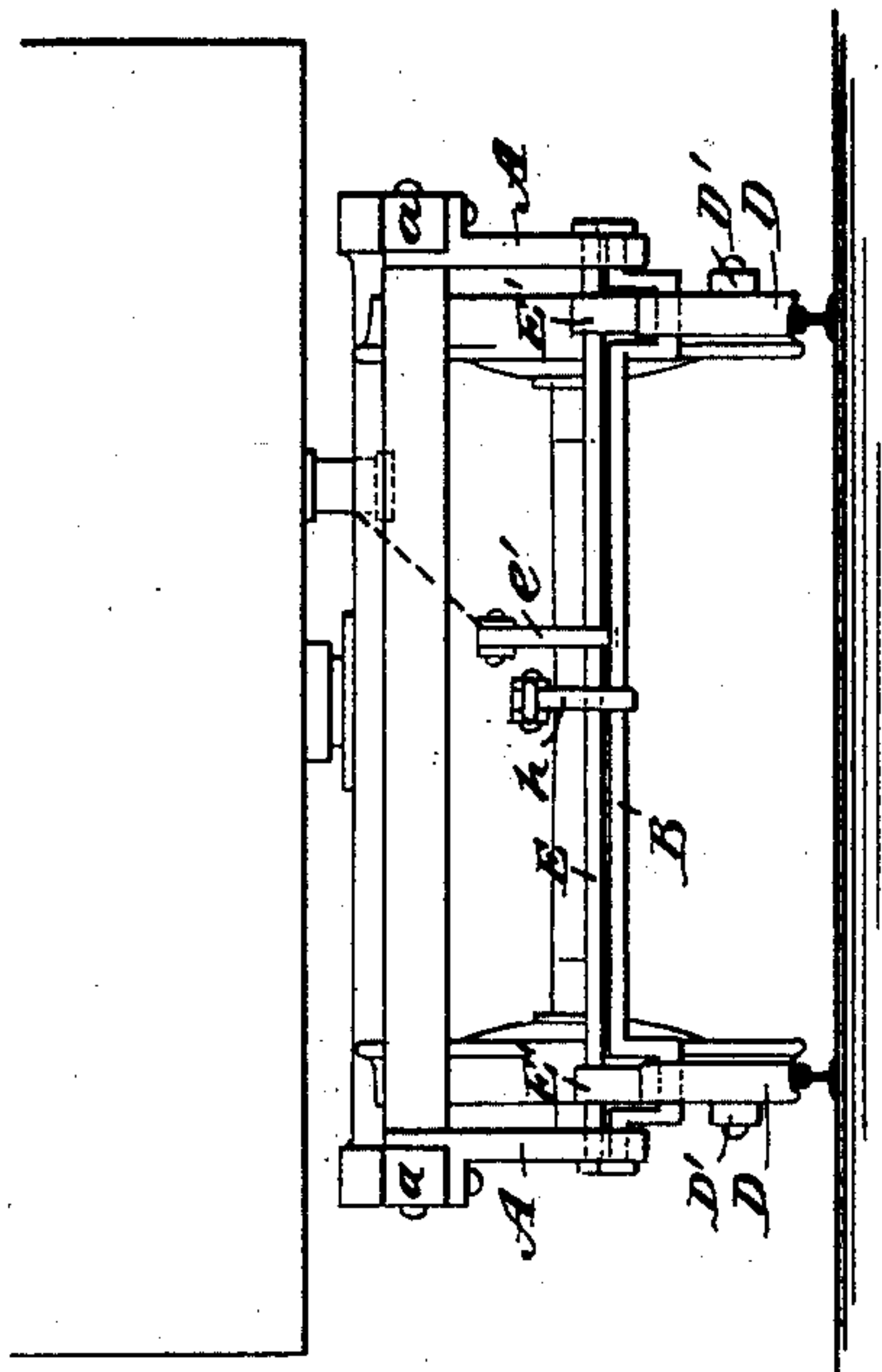
Patented Aug. 2, 1887.

Fig. 1.



Wm. Beyer
& Co. Bedgwick

Fig. 2.



INVENTOR:

L. J. Zimmermann

BY

Munn & Co.

ATTORNEYS.

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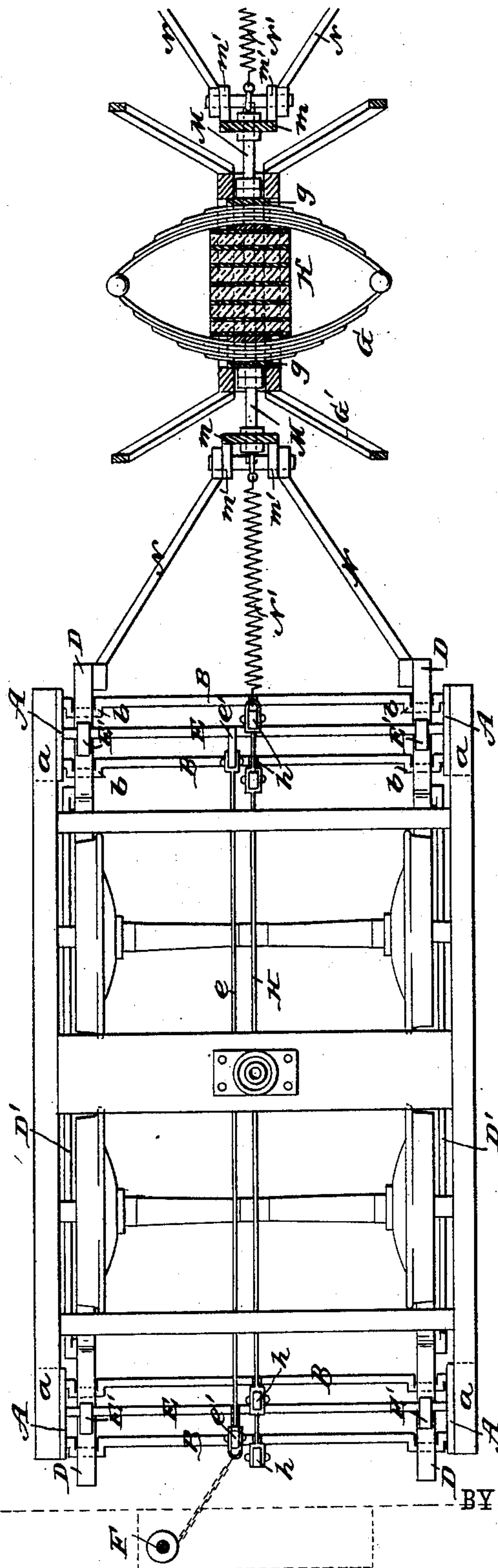


Fig. 3.

WITNESSES:

Wm. Byer
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UNITED STATES PATENT OFFICE.

LAWRENCE J. ZIMMERMANN, OF BROOKLYN, NEW YORK.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 367,573, dated August 2, 1887.

Application filed March 22, 1887. Serial No. 231,922. (No model.)

To all whom it may concern:

Be it known that I, LAWRENCE J. ZIMMERMANN, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Car-Brake, of which the following is a full, clear, and exact description.

My invention relates to an improvement in car-brakes of that class acting directly upon the track, and has for its object to provide an auxiliary brake for cars, quickly applied and positive in its action, whereby, in the event of danger, the train may be brought to a standstill, although in rapid motion, almost immediately after the application of the brakes.

The invention consists in the construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a portion of a car having my improved brake attached, and Fig. 2 is an end view thereof. Fig. 3 is a plan view of the device with the car-body removed.

In carrying out the object of the invention vertical metallic plates or hangers A are attached to the under or side surface of the longitudinal beams a of the truck at the ends thereof, which hangers are adapted to project downward about half-way to the track. The lower portion of the hangers A are formed with a central recess, a' , which produces end projections, a'' . In the end projections, a'' , of said hangers the ends of crank-shafts B are journaled, which shafts extend transversely the truck from one end hanger to the other, the crank-arms b in said shafts being formed near each end.

Shoes D are provided, more or less rectangular in shape, adapted to be positioned opposite the outer peripheral surface of each wheel. The inner edges, d , of the shoes are inclined from the top downward, and at the base an integral projection, d' , is formed, having a concave outer edge, as illustrated in Fig. 1. In the upper side surface of each shoe longitudinal spaces and elongated slots d'' are produced, through which slots the crank-arms b of the crank-shafts pass, as illustrated in Fig. 2.

Centrally the end hangers, A, a transverse shaft, E, is journaled over the recess a' in said hangers, and intervening but above the horizontal plane of the crank-shafts B. At each end of the shaft E, inside the bearings, a cam, E' , is keyed, adapted to rest lightly upon the upper horizontal edge of the shoe D when said shoes are in their normal position, raised from the track, the object of the said cams being to force the shoes downward in close contact with the track, as shown in Fig. 1, when occasion requires, in manner hereinafter set forth. The shoes D are pivotally connected at their inner ends by a horizontal connecting-bar, D' , and the cam shafts E are also connected by a horizontal bar, e , pivotally attached to vertical arms e' , integral with and extending from the upper side of said shaft. The outer end of the bar e is in turn connected with and operated by a brake-rod, F, or the said rod may be operated by compressed air, or by any suitable and approved means. I therefore do not limit myself to the means shown.

The crank-shafts B are connected with each other by a rod, H, which rod is pivotally connected to said shafts by means of vertical arms h , made integral with the upper portion of said shafts B in similar manner to the connections of rod e' with the shafts E, as shown in Fig. 3.

An elliptic spring, G, is held in horizontal suspension within a suitable frame, G' , attached to the car-body centrally beneath the car between the trucks, the said spring being rigidly supported by vertical plates g , held to slide within said frame at the ends thereof, as shown in Fig. 3. Between the opposing sections of the spring a cushion, K, is provided, consisting of alternately-interposed thin plates of metal and similar strips of cork or other elastic substance. Horizontal bolts M are passed longitudinally through the frame G' , and also through the metallic end plates, g , and the cushion K above and below the spring G, which bolts are provided with lock-nuts jamming against the sliding vertical plates g . The ends of the horizontal bolts M outside each end of the frame are made to pass through and are secured to vertical blocks m , which blocks are provided with central integral ears, m' , connection being maintained between the blocks and shoes by connecting-bars N, pivot-

ally secured at one end to said ears, and at the other end to the upper portion of the inner shoes, D, of each truck.

A spiral spring, N', is attached to the inner end of the rods H of each truck, and also to the blocks *m* about centrally their outer faces.

While but one truck is shown in the drawings, it will be readily understood that shoes are provided both trucks of a car.

In operation, when it is desired to quickly stop a train, power is applied to the bar *e*, whereby the cam-shaft E is turned, and the cams being brought in contact with the upper edge of the shoes D force the same down to a firm engagement with the track. Should the wheels ride upon the shoes they will strike the inner curved end surface of said shoes, which will thereupon act as the ordinary brake. As the car moves forward the shock is not upon the car-body, but upon the spring G and interposed cushion, as the shoes are connected therewith by the bar N, and the forward motion of the car-body, carrying with it the frame G, causes the vertical plates *g* to contract the said spring, the cushion serving to ease the flex thereof. When the train has come to a stand and the pressure removed from the cams, the spring by its expansion automatically raises the shoes from the track, returning them to their normal position.

The connecting-bars N may be made in two lengths united by a swivel-joint, if found desirable in practice, and more than two horizontal bolts, M, be employed—for instance, four may be used.

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

1. The combination, with the car-truck, of brake-shoes adapted for engagement with the track, crank-shafts B, journaled upon said truck and supporting the brake-shoes, rods H and spring N', for operating said crank-shafts, and a cam-shaft, E, located between the said crank-shaft and operated inde-

pendently thereof to depress the said shoes, substantially as described.

2. The combination, with a car-truck provided with crank-shafts suspended below the same, a cam-shaft and brake-shoes held in suspension by said crank-shafts and operated from the cam-shaft, of a spring and cushion supported beneath the car to receive the shock or backward pressure of the brake-shoes when forced upon the track, connecting-bars uniting the said spring and shoes, and a flexible connection between the spring crank-shafts, substantially as shown and described, and for the purpose herein set forth.

3. The combination, with a car-truck and a series of crank-shafts, B, journaled in hangers A beneath the truck, and transverse shafts E, carrying cams E', journaled in said hangers above the crank-shafts, of brake-shoes D, provided with longitudinal slots d^2 , adapted to receive said crank-shafts, a spring, G, suspended beneath the car, and a connecting-bar, N, uniting said spring and shoes, substantially as shown and described, and for the purpose herein set forth.

4. The combination, with a car-truck and crank-shafts B, journaled in hangers A beneath the truck, a transverse shaft, E, carrying cams E', journaled in said hangers out of the plane of the crank-shafts, of brake-shoes D, outside the wheels and in plane therewith, provided with longitudinal slots d^2 , adapted to receive the crank-shafts, a pivotal bar, D', connecting the shoes, a cushioned spring, G, suspended beneath the car, a connecting-bar, N, uniting said spring and shoes, and connections between said cushioned spring and the crank-shafts, substantially as shown and described, whereby the shoes are automatically returned to their normal position, as set forth.

LAWRENCE J. ZIMMERMANN.

Witnesses:

NIEL O. FITCH,

WALTER FREDRICKSON.