

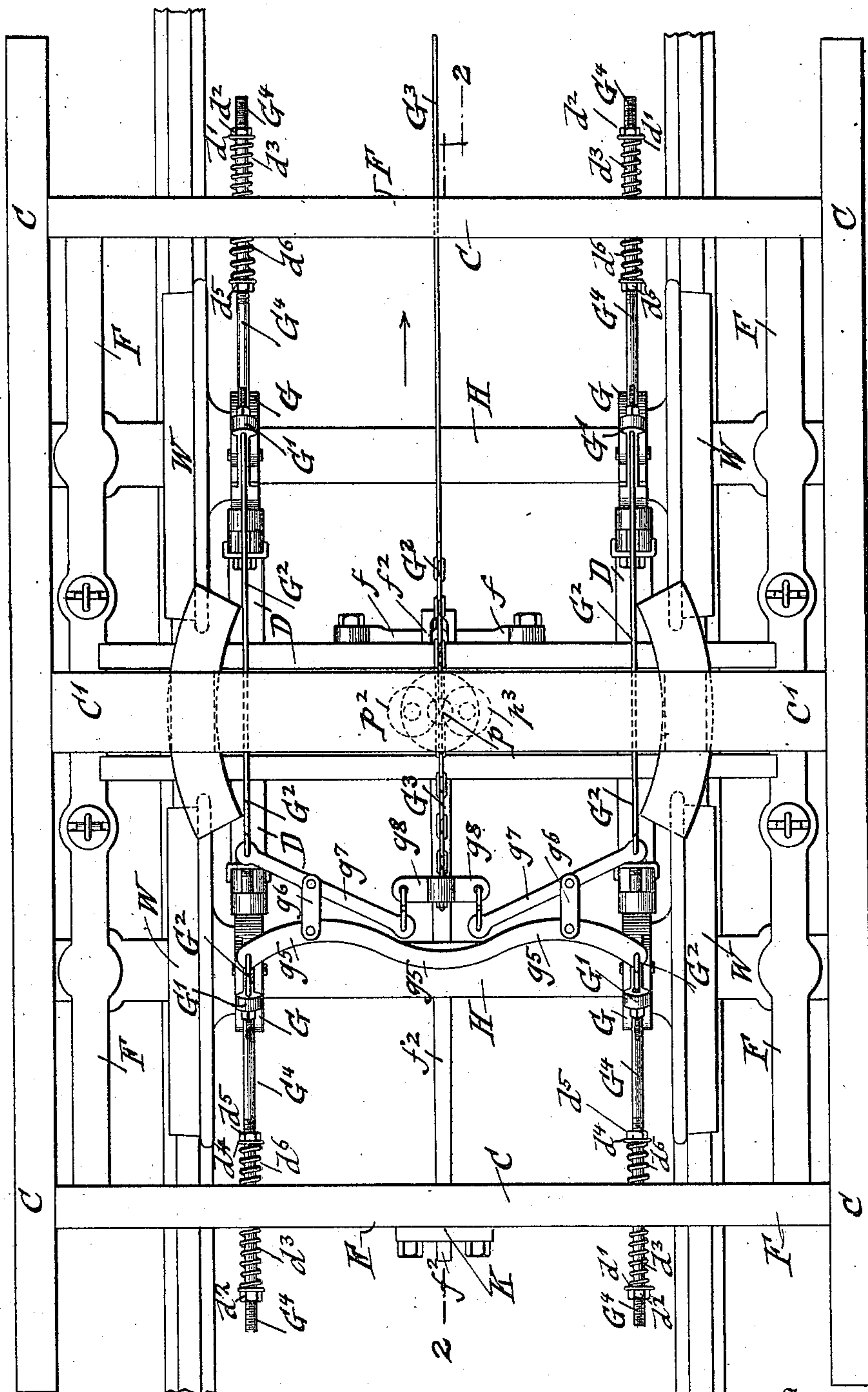
L. DE VITO.  
BRAKE FOR RAILWAY CARS.  
APPLICATION FILED MAR. 17, 1910.

975,908.

Patented Nov. 15, 1910.

4 SHEETS-SHEET 1.

Fig. 1.



Witnesses:  
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By his Attorneys  
James Goebel.

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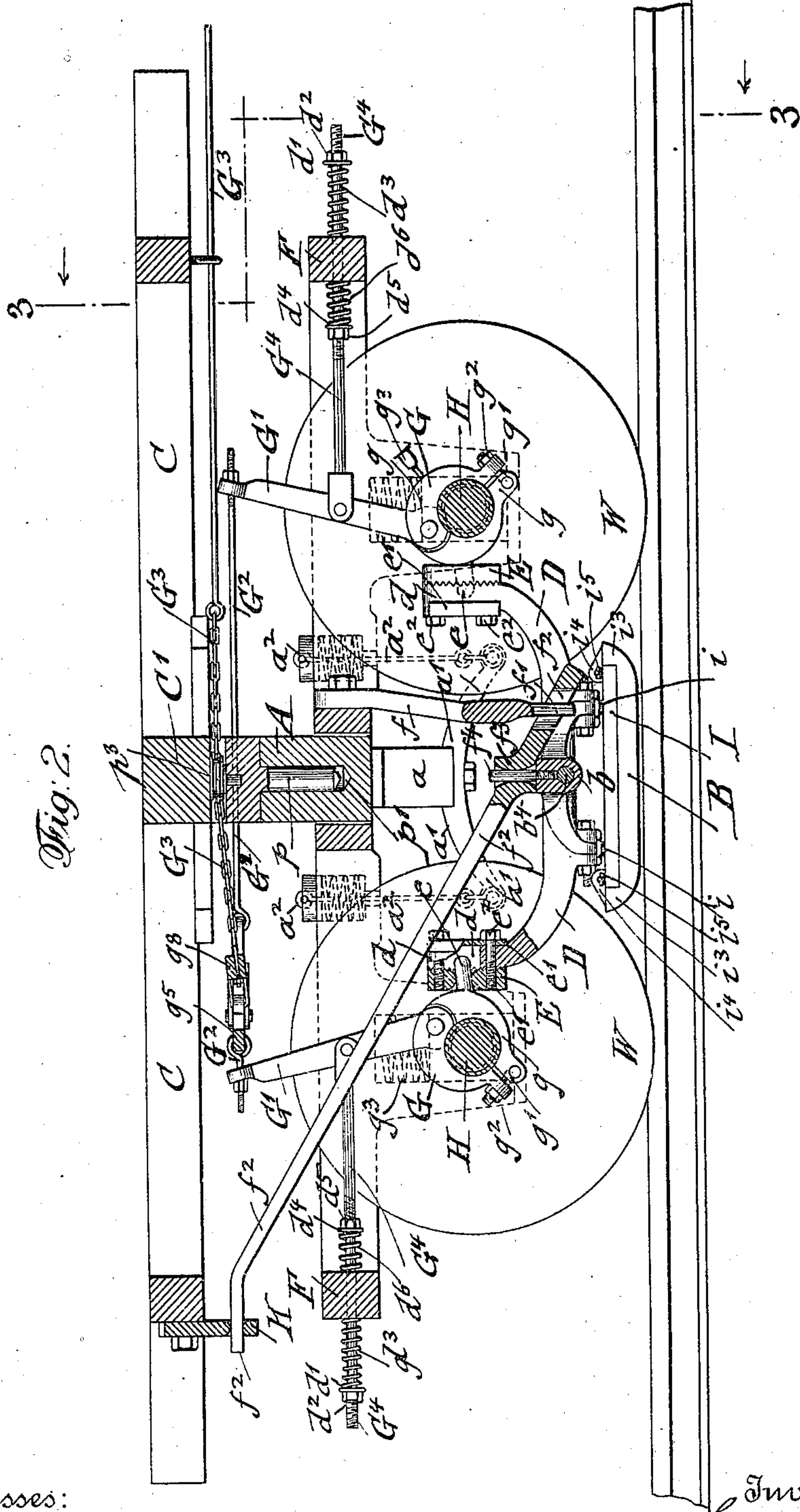


Fig. 2.

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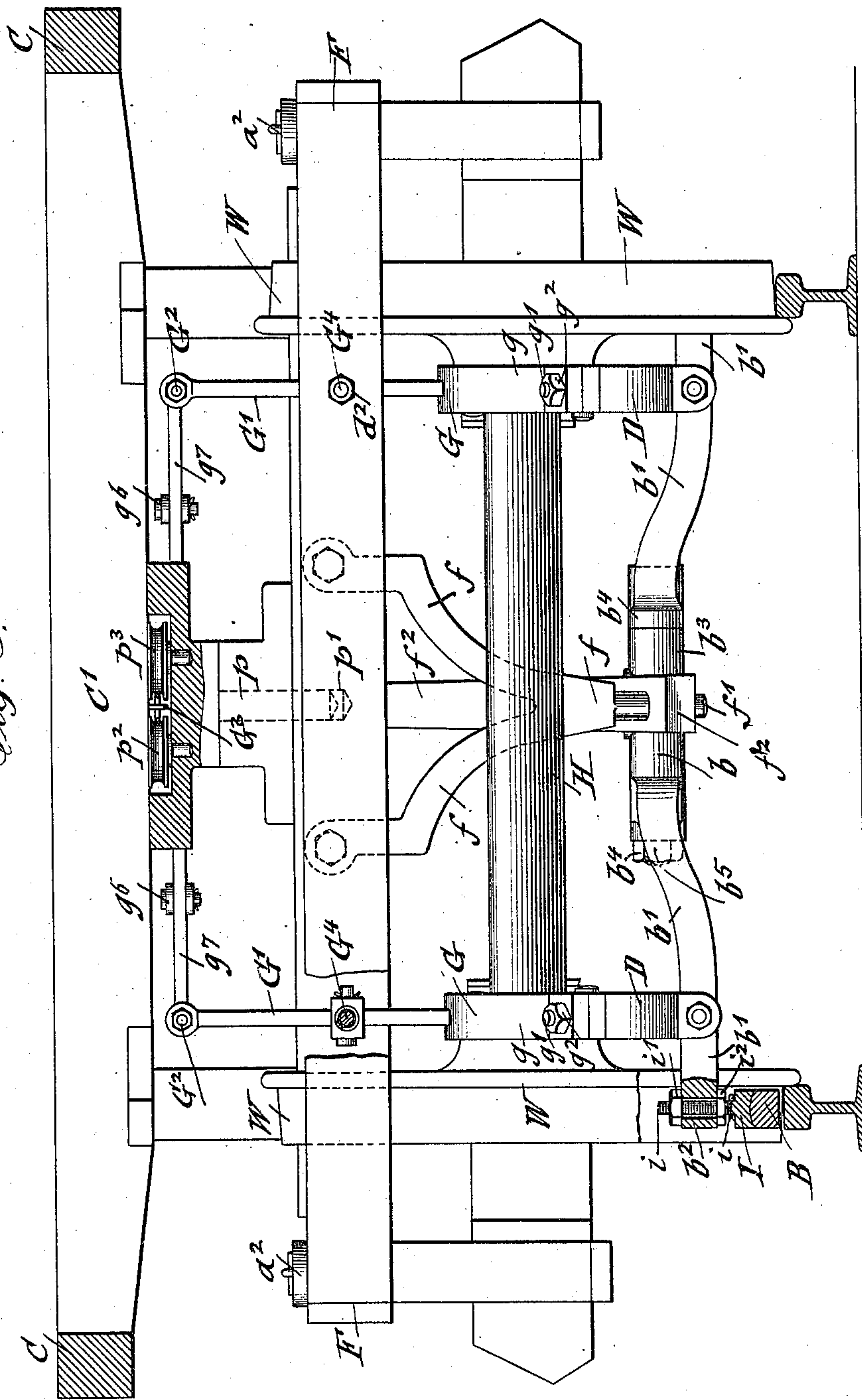
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4 SHEETS—SHEET 3.

Fig. 3.



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# UNITED STATES PATENT OFFICE.

LOUIS DE VITO, OF CLEVELAND, OHIO.

BRAKE FOR RAILWAY-CARS.

975,908.

Specification of Letters Patent.

Patented Nov. 15, 1910.

Application filed March 17, 1910. Serial No. 549,831.

*To all whom it may concern:*

Be it known that I, LOUIS DE VITO, a citizen of the United States of America, residing in Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Brakes for Railway-Cars, of which the following is a specification.

This invention relates to certain improvements in brakes for railway cars of that type in which the brake-shoes are located between the truck-wheels and adapted to be placed in contact with the heads of the rails so as to gradually arrest the car by the powerful friction exerted by the brake-shoes on the rails.

The object of the invention is to provide a brake-carrying frame which is supported on the axles of the truck-wheels and adapted to be lowered for pressing the brake-shoes onto or raising them away from the same, the hanger-frames supporting the brake-shoes being connected with the bottom of the car and adapted to be automatically moved in lateral direction for holding the brake-shoes in position above the rails when rounding curves and permitting the braking of the cars not only along the straight, but also, when required, on the curved portions of the track; and for this purpose the invention consists primarily of brake-shoes supported on hanger-frames which are suspended by stirrups from the axles of the truck-wheels and capable of vertical adjustment, the hanger-frames being connected with actuating lever mechanism for lowering the brake-shoes against the action of cushioning springs that return them into their normally raised position until they are depressed by the lever mechanism.

The invention consists secondarily of a mechanism connected with the bottom of the car for automatically oscillating the hanger-frames and brake-shoes as the truck-wheels pass around curves and keeping thereby the brake-shoes always vertically above the rails; and the invention consists lastly of certain details of construction of the various actuating parts which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a plan-view of a car-truck with my improved brake, Fig. 2 is a vertical longitudinal section on line 2, 2, Fig. 1, Fig. 3 an end-elevation, drawn on a larger scale

and partly in vertical transverse section on line 3, 3, Fig. 2, some portions being in section, and Fig. 4 a bottom-view of the car-truck and brake.

Similar letters of reference indicate corresponding parts throughout the several figures.

Referring to the drawings, A represents the cross-beam or bolster of the truck-frame on which the bottom-frame C<sup>1</sup> of the car C is supported by means of a king-pin *p* in a socket *p*<sup>1</sup> of the bolster in the usual manner. The bolster A is supported by curved brackets *a* at both ends on elliptical springs *a*<sup>1</sup> which are suspended by spring-actuated hanger-rods *a*<sup>2</sup> from the truck-frame F. The truck-frame is provided with the usual axle-boxes for supporting the axles H of the truck-wheels W. In the space between the truck-wheels at each side of the truck-frame are arranged brake-shoes B which are supported on eyes *b*<sup>2</sup> on the forked ends *b*<sup>1</sup> of a transverse rod *b*. The forked ends *b*<sup>1</sup> of the transverse rod *b* are pivotally connected with U-shaped hanger-frames D, D, one at each side of the truck-frame, which hanger-frames are provided at their upper ends with forked serrated ends *d* which intermesh with toothed blocks E that are provided with socket-holes for the supporting pins *e* on stirrups G that are guided by suitable bearings in grooves of the axles H of the truck-wheels W, as shown in Fig. 2. The serrated ends *d* and blocks E are connected by washer-plates *e*<sup>1</sup> and fastening screw-bolts *e*<sup>2</sup>. The stirrups G are each formed of two semicircular sections *g* that are pivoted to each other at one end and connected by means of eye-bolts *g*<sup>1</sup> and screw-nuts *g*<sup>2</sup> at the opposite ends. The upper sections of the stirrups G are provided with lubricating cups *g*<sup>3</sup>. To the upper part of the stirrups are rigidly secured the lower ends of pivot levers G<sup>1</sup>, the perforated upper ends of which are connected by horizontal draft-rods G<sup>2</sup> and an intermediate lever mechanism *g*<sup>5</sup>, *g*<sup>6</sup>, *g*<sup>7</sup> and *g*<sup>8</sup> with a main draft-chain or wire-rope G<sup>3</sup> that is guided between two pulleys *p*<sup>2</sup>, *p*<sup>3</sup> which turn in suitable bearings in a recess of one of the cross-beams of the car-bottom located vertically above the bolster A. The pulleys *p*<sup>2</sup>, *p*<sup>3</sup> are arranged closely to each other so that they guide the main draft-chain or rod and are turned by the longitudinal motion of the draft-chain or rod G<sup>3</sup> when the latter is pulled in the



direction of the arrow shown in Fig. 1. The upper ends of the pivot-levers  $G^1$  are thereby moved toward each other so that their lower ends turn the stirrups  $G$  on the  
5 axles  $H$ .

To the middle portion of the pivot-levers  $G^1$  are pivoted horizontal rods  $G^4$  which pass through the end cross-bars of the truck-frame  $F$ . The rods  $G^4$  are screw-threaded  
10 at the outer ends and provided with screw-nuts  $d^2$  and washers  $d^1$ , between which and the cross-bars of the truck-frame are interposed strong helical springs  $d^3$  which serve for the purpose of holding the pivot-levers  
15 and their actuating lever mechanism in their normal position, and likewise, by means of the stirrups, the hanger-frames  $D$ , the transverse supporting rod  $b$  and the brake-shoes  $B$  in normally raised position, with the latter at some distance from the rails. When  
20 the pivot-levers  $G^1$  are drawn toward each other by the action of the main draft-chain, lever mechanism and draft-rods, the stirrups are turned on the axles of the truck-wheels, and thereby the hanger-frames  $D$ ,  
25 together with the brake-shoes, are lowered against the tension of the spring-cushioned rods  $G^4$ , so that the brake-shoes are applied with considerable frictional pressure to the heads of the rails. The spring-cushioned  
30 rods  $G^4$  are further provided at their middle portions, inside of the truck-frame, with washers  $d^4$  and screw-nuts  $d^5$ , between which and the inner faces of the end cross-bars of  
35 the truck-frame are interposed additional helical springs  $d^6$  of greater power than the springs  $d^3$ , which springs  $d^6$  serve for the purpose of imparting a certain degree of flexibility to the brake-shoes so as to permit  
40 them to pass over any unevenness or obstruction placed on the rails and prevent thereby injury or breakage to the intermediate parts. The screw-nuts  $d^2$  and  $d^5$  serve for adjusting the tension of the cushioning  
45 springs  $d^3$ ,  $d^6$ .

The transverse rod  $b$  is made of two parts, one part being provided with a tubular shank  $b^3$  and the other with a solid shank  $b^4$ , each having forked ends, the solid shank  
50 fitting into the tubular shank and being secured thereto by means of a screw-nut  $b^5$  applied to the threaded projecting end of the solid shank. The forked ends of the transverse rod  $b$  are extended beyond their pivot  
55 al connection with the hanger-frames and support in their eyes  $b^2$  the brake-shoe holders  $I$  by means of upright threaded posts  $i$ , said posts being held in position by means of screw-nuts  $i^1$ ,  $i^2$  arranged respectively  
60 above and below the same, as shown at the lower left-hand part of Fig. 3. The brake-shoes  $B$  are attached to the brake-shoe holders  $I$  by means of upwardly-bent ends  $i^3$  having inwardly-projecting perforated ears  
65  $i^4$ , which latter are attached by transverse

keys  $i^5$  to ears of the brake-shoe holders, as shown clearly in Fig. 2 or by the screw-bolts or in any other approved manner.

To the middle portion of the truck-frame is rigidly attached at one side of the forked  
70 bolster  $A$ , a forked hanger  $f$  that is provided at its lower end with a pin  $f^1$  which engages the lower slotted end of an inclined bar  $f^2$ , the upper horizontal and rounded end of which passes through the perforated lower  
75 end of a hanger  $K$  that is attached to one of the cross-bars of the car-bottom, as shown in Fig. 2. The lower portion of the inclined bar  $f^2$  is provided vertically below the king-bolt with a socket  $f^3$  that engages a center-  
80 pin  $f^4$  on the cross-bar  $b$  so as to turn on the same in following the motion of the car when rounding curves. The lower slotted end of the inclined bar  $f^2$  which engages the pin  $f^1$  at the lower end of the V-shaped  
85 hanger  $f$  moves thereby the cross-bar, with its forked ends, and the brake-shoes, to one side or the other, according as the curve is a right or left hand one, as the suspended  
90 hanger-frames swing on the pins of the stirrups and follow thereby the lateral motion of the inclined governing bar  $f^2$ , so as to keep thereby always the brake-shoes above the rails and ready for the braking action.  
95 The hanger-frames with the brake-shoes and inclined governing bar are adjusted higher or lower on the toothed blocks  $E$  and supporting pins by the adjacent serrated  
100 faces of the blocks and upper ends of the hanger-frames, the blocks being provided with perforations at the upper ends of sufficient size to permit the free play of the supporting pins in the same. After the proper  
105 adjustment of the brake-shoes relatively to the rails and of the hanger-frames to the blocks  $E$  is made by the washer-plates  $e^1$  and fastening screw-bolts  $e^2$ , the brake-shoes are ready for the braking action whenever  
110 required.

When the brake is to be operated, the  
110 main draft chain or rod is pulled in the usual manner and by the lever mechanism described the upper ends of the pivot-levers are moved toward each other against the  
115 tension of their cushioning springs, whereby the stirrups are turned on the truck-axles so as to move the hanger-frames in downward direction and press the brake-shoes firmly against the rails. The inclined  
120 bar is not affected by this motion as the slot in its lower end is of sufficient length to permit the free up and down play of the hangers and brake-shoes; but when the car passes around a curve, the inclined governing bar  
125 is taken along at its upper end by the hanger  $K$  on the car-bottom and swings on the pin at the lower end of the forked hanger and moves thereby the pin  $f^4$  on the transverse rod  $b$  and thereby the hanger-frames  
130 with the brake-shoes along to one side or



the other, so that the latter are held in position above the rails ready for instant action in case a braking action should be required while rounding a curve. When it is necessary to renew the brake-shoes they are removed from the brake-shoe holders by removing the fastening keys and replacing new shoes in place of the worn-out shoes.

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

1. The combination, with a brake-operating lever mechanism, of pivot-levers engaged by the same, spring-actuated rods engaging the middle portions of said levers, stirrups placed on the axles of the truck-wheels pivotally connected with said levers, said stirrups being provided with supporting pins, hanger-frames supported on said pins, a transverse rod pivotally connected with said hanger-frames and provided with forked ends, and brake-shoes supported on the forked ends of the transverse rod.

2. The combination, with a brake-operating lever mechanism, of pivot-levers connected with the same, stirrups placed on the axles of the truck-wheels, spring-cushioned rods connected with the middle portions of said levers, blocks supported on projecting pins of the stirrups, hanger-frames supported on said pins, means for adjustably connecting said hanger-frames with said blocks, a transverse rod pivotally connected with the hanger-frames and provided with forked ends, and brake-shoes supported on said forked ends.

3. The combination of hanger-frames suspended on the axles of the truck-wheels, a transverse connecting rod between the same having forked ends pivoted to the lower parts of the hanger-frames, brake-shoes supported on the forked ends of said rod, and means connecting the transverse rod with the car-bottom for imparting a lateral motion to the hanger-frames and brake-shoes when rounding curves.

4. The combination of pivotally-supported hanger-frames suspended from the axles of the truck-wheels, a transverse connecting rod between the hanger-frames having forked ends pivoted to the lower parts of the

hanger-frames, brake-shoes supported on the forked ends of said rod, a hanger on the truck-frame, an inclined rod connecting the lower end of the stationary hanger with the lower slotted end of said inclined rod, a center-pin on the transverse rod engaging a socket in the inclined rod, and a bracket-block on the bottom-frame of the car provided with a perforation for engaging the upper end of the inclined rod for causing the lateral swinging of the hanger-frames and brake-shoes when rounding curves.

5. In a railway car-brake, the combination, with a brake-operating draft-chain, of guide-wheels for the same at the center of the car-bottom, draft-rods connected with the draft-chain, pivot-levers connected with the draft-rods, spring cushioning rods connecting said pivot-levers, stirrups on the axles of the truck-wheels applied to the lower ends of the pivot-levers, brake-shoes, and supporting mechanism between the stirrups and brake-shoes.

6. In a railway car-brake, the combination, with hanger-frames suspended from the axles of the truck-wheels, of a transverse connecting rod between the same having forked ends, brake-shoe holders supported on the forked ends of the transverse rod, brake-shoes on said holders, and means for suspending the brake-shoe holders on the forked ends of the transverse rod.

7. In a railway car-brake, the combination, with hanger-frames suspended from the axles of the truck-wheels, of a transverse rod composed of two parts each having forked ends, one part having a solid shank and the other having a tubular shank for receiving the solid shank, and means for connecting said shanks, brake-shoe holders suspended from the outer ends of the transverse rod, and brake-shoes attached to said holders.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

LOUIS DE VITO.

Witnesses:

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