

No. 744,569.

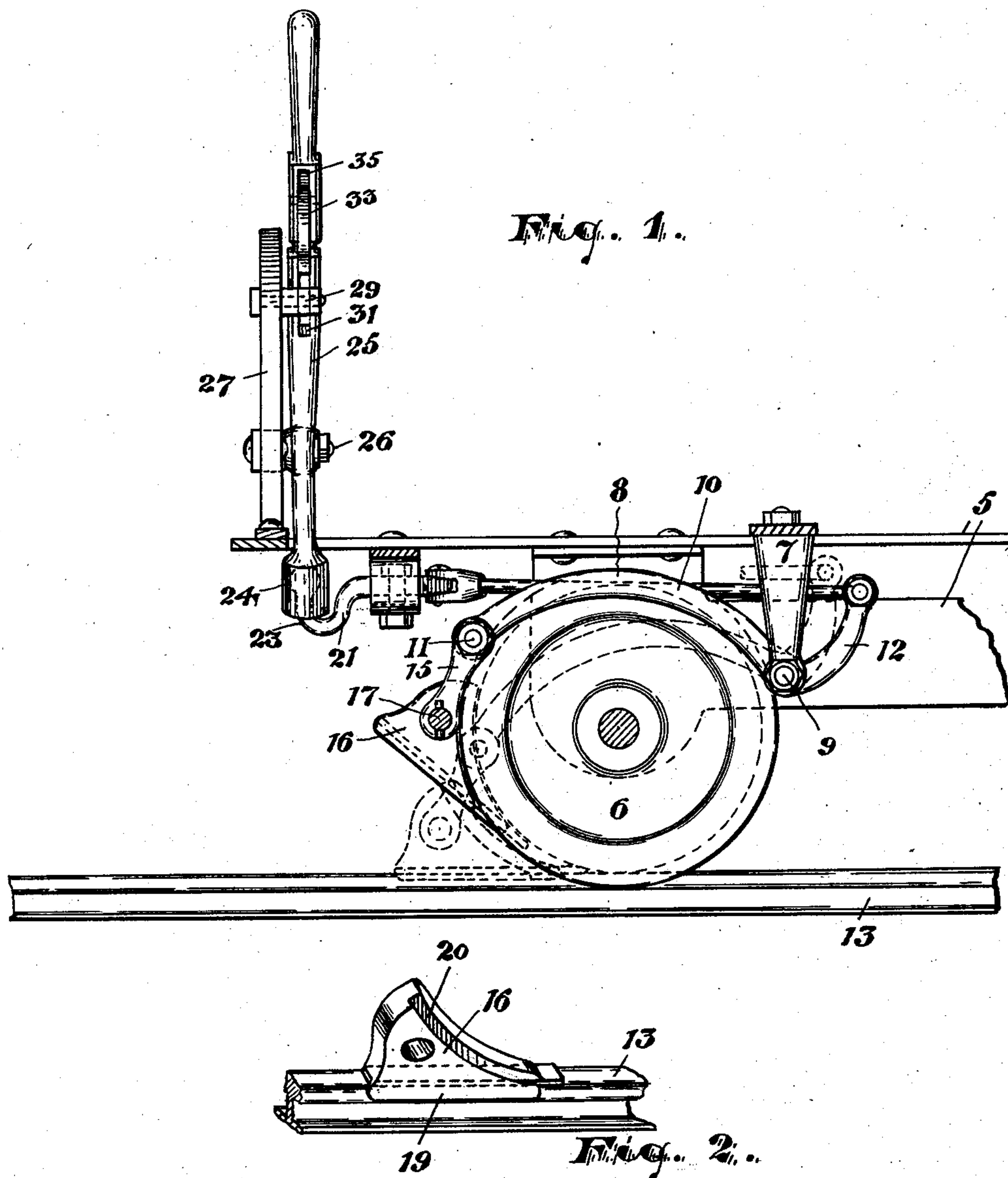
PATENTED NOV. 17, 1903.

J. B. LAU.
CAR BRAKE.

APPLICATION FILED JUNE 13, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:
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John B. Lau,

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2 SHEETS—SHEET 2.

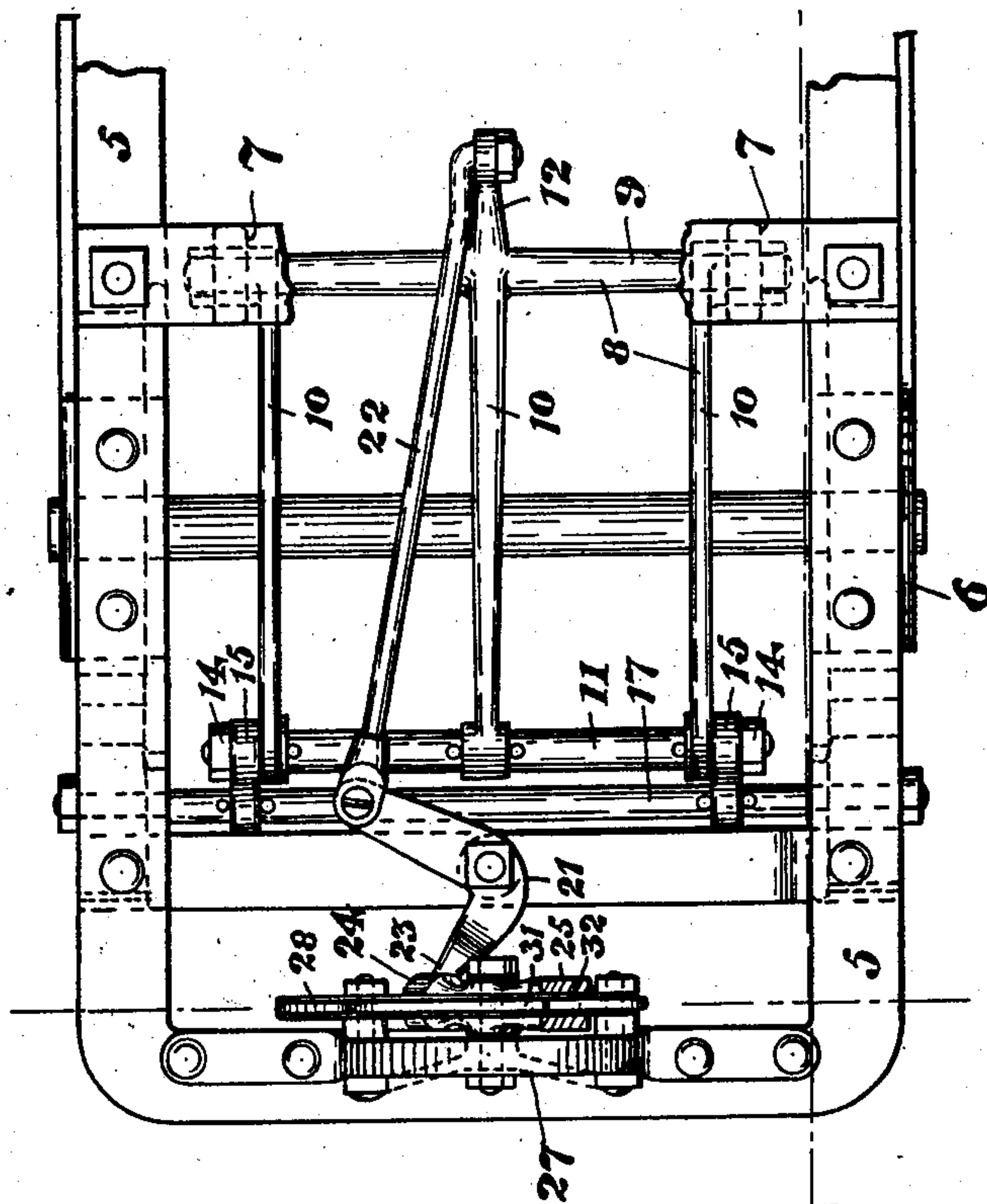


Fig. 4.

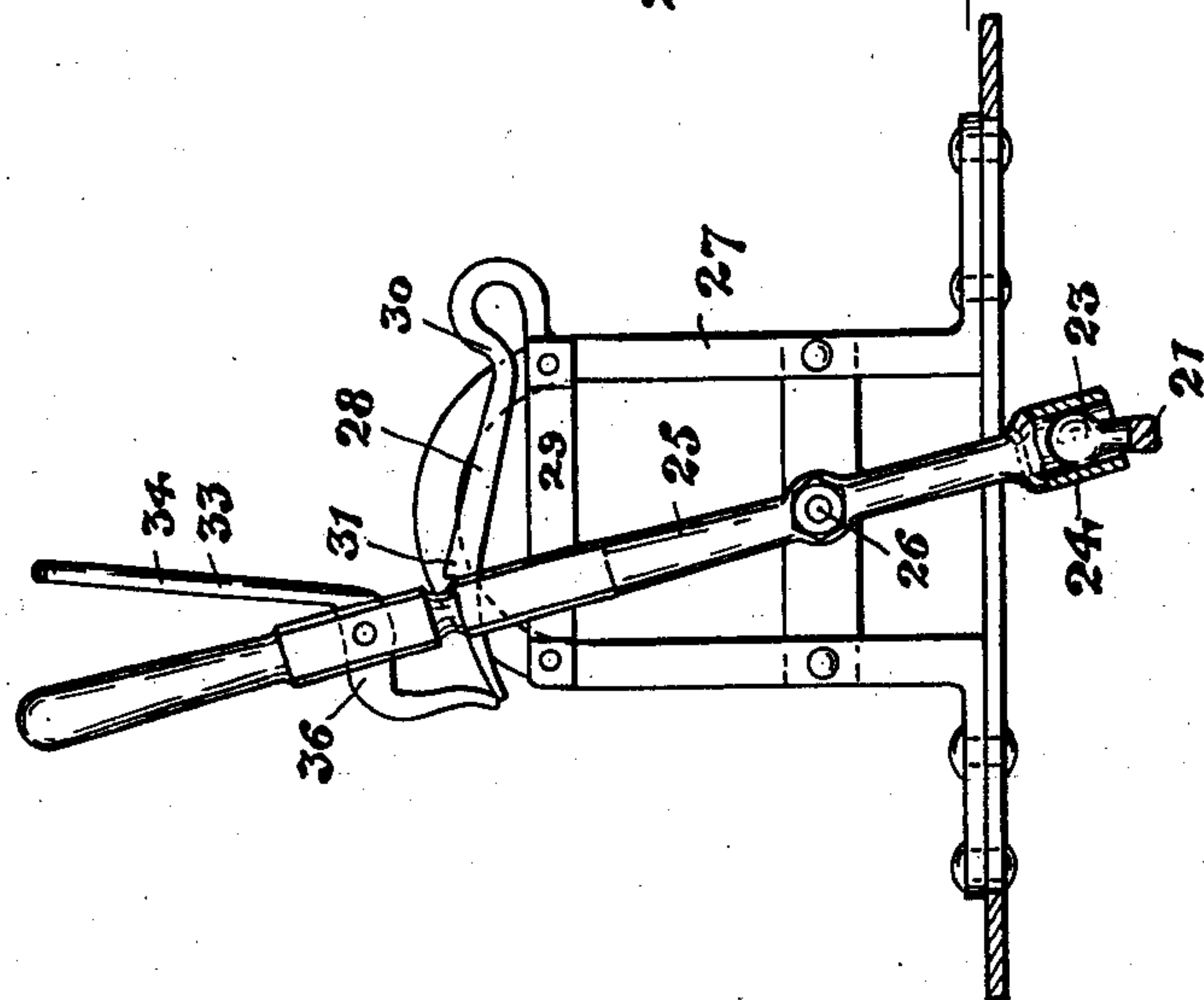


Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN B. LAU, OF NEWARK, NEW JERSEY.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 744,569, dated November 17, 1903.

Application filed June 13, 1903. Serial No. 161,258. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. LAU, a subject of the Emperor of Germany, residing at Newark, in the county of Essex and State of New Jersey, have invented and produced new and original Improvements in Car-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as 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 figures of reference marked thereon, which form a part of this specification.

The object of this invention is to more effectively, surely, and quickly stop the progress of tramway, trolley, or similar cars running on tracks and to secure other advantages and results, some of which will be hereinafter referred to in connection with the description of the working parts. Preferably it is adapted to serve as an emergency-brake with any of the common brakes now in vogue.

The invention consists in the improved car-brake and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like figures of reference indicate corresponding parts in each of the several figures, Figure 1 is a side elevation of a portion of a car to which my improved brake has been applied. Fig. 2 is a detail view of a brake-shoe resting on a track. Fig. 3 is a detail view showing a certain hand-lever and its immediate connections; and Fig. 4 is a plan of the device, certain parts being omitted to more clearly illustrate those remaining.

In said drawings, 5 indicates a car body or frame of any suitable construction, and 6 represents the wheels supporting the same. At a point on said body or frame 5 rearward of the wheels to which the brake is to be applied are arranged hangers 7, on which are fulcrumed a frame-like lever 8, comprising a fulcrum bar or shaft 9, forwardly-extending arms 10 10, carrying a brake-shoe bar or shaft 11, which lies approximately in line with the front parts of the peripheries of said wheels 6, above referred to. Said frame-like lever

8 is also provided with an upwardly and rearwardly extending arm 12, adapted to receive the hand-operated connection by which the brake-shoes are lowered on the track 13, as hereinafter described.

The parts 9 10 11 12 are preferably in one integral piece, cast or wrought together in any suitable manner; but they may be constructed in a plurality of joined pieces, if so desired.

The brake-shoe-carrying bar or shaft 11 at its opposite ends extends a little beyond the outer arms 10 10 and is threaded to receive the nuts 14, and on the extensions of said bar or shaft are arranged the links 15 15 by which the brake-shoes 16 16 are suspended from the frame 8. Said brake-shoes 16 are pivoted on a connecting-shaft 17, extending from one shoe to the other and at its opposite ends lying in front of the wheels 6 and over the tracks 13, the shoes being so disposed on said shaft 17 as to drop on said track when the frame 8 and connections are lowered.

The links 15, connecting the frame 8 and shaft 17, permit a certain independence of horizontal movement, so that the car after the shoes have been dropped upon the track can travel forward onto said shoes and be stopped by such engagement. To permit the shoes 16 to set upon the track in advance of the wheels 6, the arms 10 are of considerable length, much longer than one of the radii of the wheel 6, and the parts are so arranged and related as to cause the shoes to drop a little forward of the wheels, and the rearward concavous side of the shoes will lie away from the wheels at first. The wheels will then ride up and against the concave face of said shoes and be stopped thereby, the weight of the wheels on the shoes increasing the friction of the flat under faces of the shoes on the rails.

To prevent the shoes from slipping on the rails, the flat under sides may be provided with linings of leather or rubber, and for winter service, when the tracks are liable to be covered with ice, on which a smooth shoe might slip after the fashion of a sled-runner, the said under side of the shoe may be deeply serrated to form cutting-teeth adapted to cut the ice and bite into the rail.

The under side of the shoe is preferably provided with a flange 19 to engage the side of the rail, as indicated in Fig. 2, and the upper side is recessed or grooved, as at 20, to receive the flange of the wheel.

To operate the frame and lift and hold the shoes up and away from the track, I have provided a lever 21, which is fulcrumed on the frame or body of the car, as in Fig. 1, and is connected by a rod 22 to the arm 12 of the frame, so that when the said rod 22 is drawn forward by said lever 21 the frame at its free end and the shoes connected therewith will be permitted to drop; but when said rod is forced backward the said frame and shoes will be raised out of braking relation to the rails. The arm 23 of the lever 21 is bent upward, as in Figs. 1 and 3, and is rounded to enter a socket 24 in the lower extremity of the hand-lever 25, fulcrumed at 26 on a suitable standard 27, attached to the front platform of the car. The upper end of said hand-lever 25 is provided with a catch 28 to hold said lever in position to hold the shoes in their elevated positions. Said catch 28 consists, preferably, of a spring doubled, as shown in Fig. 3, the lower arm 29 of which is bolted or otherwise secured to the standard, while the upper arm 30 is provided with a catch extension 31, adapted to engage the hand-lever. Said hand-lever is preferably horizontally perforated with a slot 32, as shown in Figs. 1 and 4, through which the upper and lower arms of the spring-catch pass, and the catch extension is adapted to engage the hand-lever at the upper end of the slot.

To release the catch extension from the hand-lever, I prefer to provide a supplemental lever 33, having a handle 34 lying approximately parallel with the handle of the main hand-lever 25. Said hand-lever 25 is again slotted horizontally near its handle, as at 35, and the said supplemental lever is bent horizontally, as at 36, Fig. 3, and extends through the upper slot 35 and on the opposite side of the hand-lever is again bent or turned downward into engagement with the free arm of the spring, so as to press said arm away from catching engagement when the two handles are grasped and drawn together by the hand of the motorman.

In operation the brake-shoes are held normally in their elevated positions, and when the car is to be stopped the handles of the hand-levers 25 33 are grasped by the hand, drawn together to release the catch, and then pulled horizontally, so as to turn the main hand-lever 25 on its fulcrum 26. This action effects a pivotal movement of the lever 21 and a forward movement of the connecting-rod 22, which last causes the free end of the lever-like frame 8 to move downward, the movement being greatly facilitated by the weight of the free end of the said frame and the shoes attached thereto. Indeed, the weight

of said parts may serve as the prime motive force in the braking operation. The flat or straight sides of the shoes resting on the track a little in advance of the wheels 6, the latter ride upon the inclines of the shoes, the links 15 15 permitting such action, after which the wheels are stopped in the concavities. A reverse operation of the main hand-lever and its connections again raises the shoes to their normally inoperative position. While I prefer to employ my brake as an emergency-brake, it can be employed in the regular work of stopping the car to let passengers on or off.

Having thus described the invention, what I claim as new is—

1. In a car-brake, the combination with a lever and its fulcrum, of a brake-shoe loosely connected with the forward end of said lever and adapted to drop upon the track in front of the wheel of the car, and a train of levers and their connections attached to the rear end of said lever and adapted to be operated by the motorman or driver of the car, substantially as set forth.

2. In a car-brake, the combination with the shoe, a link pivotally connected to said shoe, a lever fulcrumed on the car intermediate of its ends and at its forward end having said link attached, said lever being adapted to lower said shoe upon the track forward of the wheel, and the opposite end of said lever extending upward from the fulcrum, a connecting-rod attached to said upwardly-extending end, and a lever operating said connecting-rod and its connections, substantially as set forth.

3. The improved car-brake comprising a pair of shoes having straight under sides to engage the track and concave upper sides to receive the wheels, links 15, a lever-like frame extending rearward and being fulcrumed on the car body or frame, another lever fulcrumed on said body and connected to the first by a connecting-rod, and a hand-lever adapted to be controlled by the motorman of the car, substantially as set forth.

4. The improved car-brake, comprising a pair of shoes having straight under sides and concave upper sides, a connecting-shaft on which said shoes are pivoted, a frame fulcrumed on the car rearward of the wheels to be stopped by the brake-shoes, said frame having a rearwardly and upwardly extending arm, a connecting-rod extending forwardly from said arm, a lever connecting with said connecting-rod and having an upwardly-extending arm and a socketed hand-lever engaging the last said lever, and a catch for holding said parts, substantially as set forth.

5. The improved car-brake, comprising a pair of shoes having straight under sides and concave upper sides, a connecting-shaft on which said shoes are pivoted, a frame fulcrumed on the car rearward of the wheels to be stopped by the brake-shoes, said frame having a rearwardly and upwardly extending

arm, a connecting-rod extending forwardly
from said arm, a lever connecting with said
connecting-rod and having an upwardly-ex-
tending arm and a socketed hand-lever en-
5 gaging the last said lever, and a catch con-
sisting of a bent spring having a catching
extension adapted to engage the hand-lever
and hold the latter and the shoes in connec-
tion therewith in inoperative relation and a
10 lever for releasing the spring-catching exten-

sion from said hand-lever, substantially as
set forth.

In testimony that I claim the foregoing I
have hereunto set my hand this 6th day of
June, 1903.

JOHN B. LAU.

Witnesses:

CHARLES H. PELL,
RUSSELL M. EVERETT.