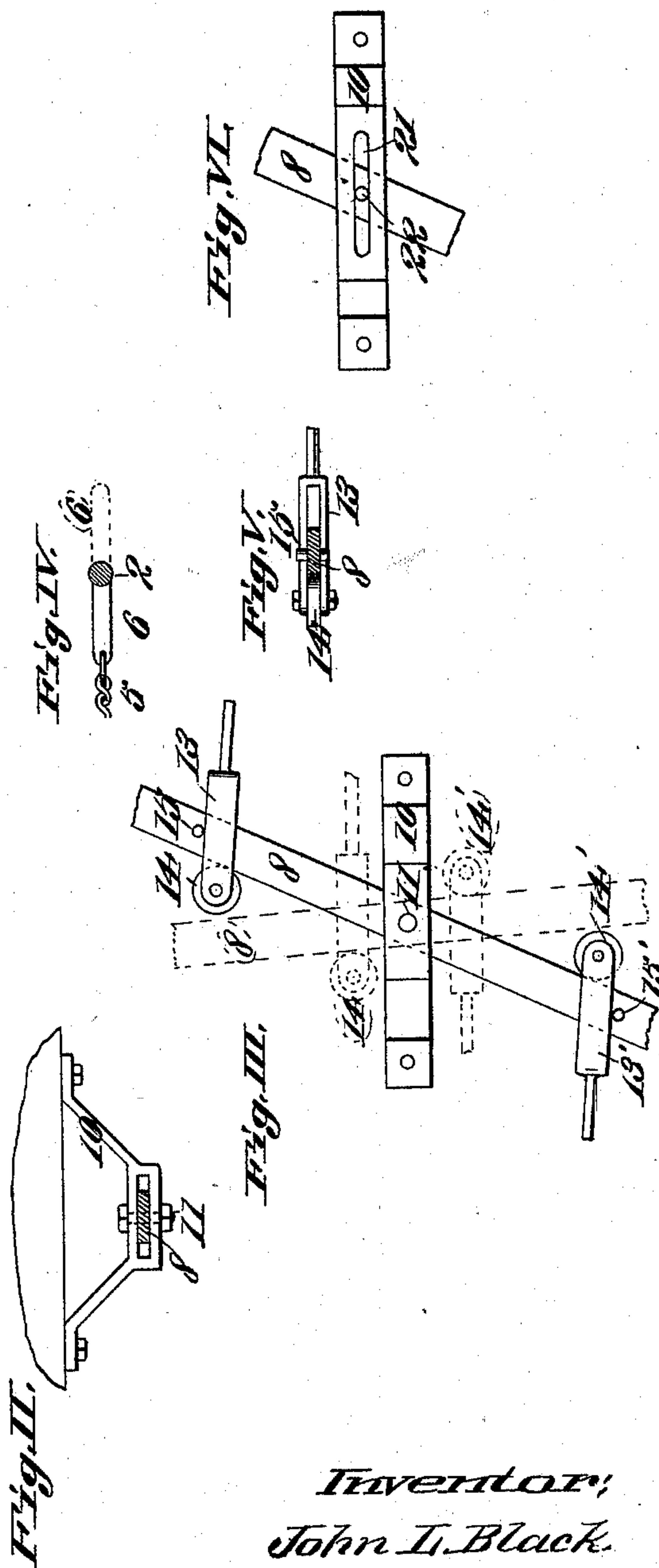
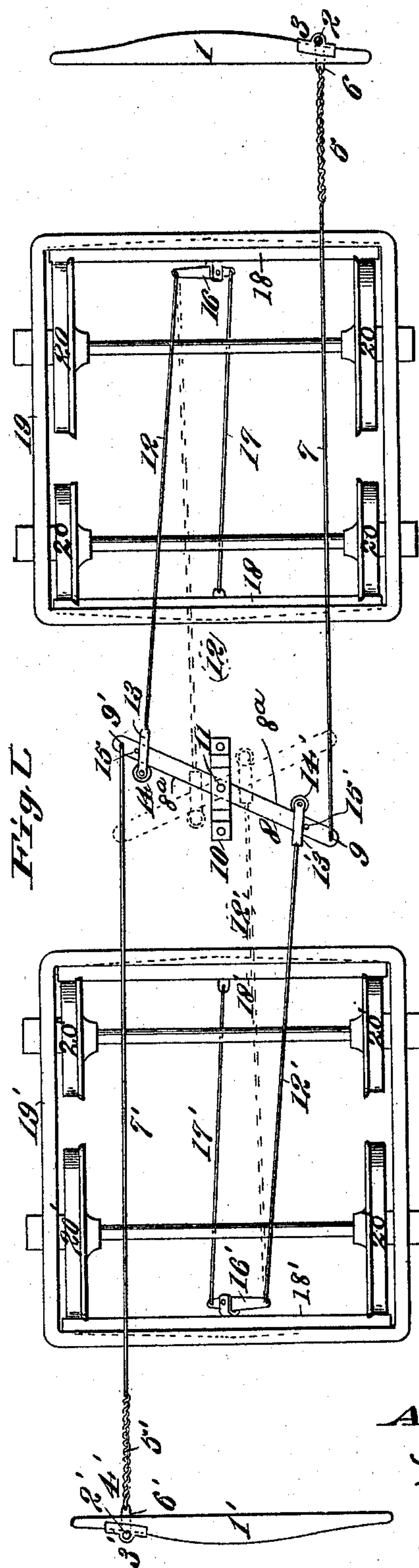


(No Model.)

J. L. BLACK.
CAR BRAKE.

No. 585,648.

Patented July 6, 1897.



Inventor,
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UNITED STATES PATENT OFFICE.

JOHN L. BLACK, OF ST. LOUIS, MISSOURI.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 585,648, dated July 6, 1897.

Application filed December 19, 1896. Serial No. 616,275. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. BLACK, a citizen of the United States, and a resident of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Car-Brakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The question of a more efficient car-brake than heretofore used has become of great importance as a direct result of the improvement in transit systems. Of the numerous experiments that have been made, including air, water, electric, and momentum brakes, railroad men agree that no matter what power is employed the hand-brake under direct control of the motorman is the most satisfactory.

It is therefore the object of my invention to provide a hand-brake which cannot become inoperative and which can instantly apply enough power to stop within a minimum of time and distance even the heaviest of modern street-railway cars.

My improvement consists in a car-brake comprising novel features of construction to adapt it for use with a pair of car-trucks each having four wheels, as hereinafter described and specifically claimed.

My invention is illustrated in the accompanying drawings, in which—

Figure I is a top plan view of the trucks and wheels of a car, showing the arrangement of my brakes. Fig. II is a detail side view of the lever-bar hanger. Fig. III is a detail bottom view of the said lever-bar hanger, showing also the lever-bar and the sliding stirrups. Fig. IV is a detail view showing the manner in which I attach the chain of the brake-rod of the lever-bar to the hand crank-shaft. Fig. V is a side view of the manner of securing the sliding stirrups to said pivoted lever-bar, showing the pivoted lever-bar in section. Fig. VI is a detail bottom view of a modified form of hanger, showing what is known as a "floating lever-bar."

1 is a sill of the car, to which the hand crank-shaft 2 is secured by means of a bracket 3. At the point where the brake-chain 5 is attached to the shaft 2 is an arm 6, rigid with said shaft.

7 is the brake-rod, to the outer end of which the chain 5 is connected and whose inner end is pivoted at 9 to the lever-bar 8. This lever-bar 8 is formed with parallel vertical sides 8^a, on which cylindrical rollers 14 run, and is suspended from the car-body by means of a hanger 10, located between the car-trucks 19, each supported by two pairs of wheels 20, and is pivoted therein by its center pivot-pin 11.

12 is a connecting-rod which is movably attached to the lever-bar 8 by means of a stirrup 13 and roller 14, running on one side of the lever-bar. The sidewise movement of each stirrup on the lever-bar 8 is limited on the outer end by a stop or pin 15, located across the path of the stirrup and adjacent to the brake-rod. An obliquely-arranged beam-lever 16, attached to the outer brake-beam 18 of the car-truck, compounds the power and is attached by the intermediate rod 17 to the inner brake-beam 18.

The corresponding parts at the opposite end of the lever-bar and car are marked by the same numerals bearing prime-marks.

The operation of the device is as follows: When the hand crank-shaft is turned, the arm 6 is revolved, which first draws the chain 5 about said shaft with considerable more speed than if it were directly attached thereto. The parts previous to turning the hand crank-shaft are in the position shown in full lines in Fig. I, the roller 14 being at the end of the lever-bar 8 and the stirrup resting against the stop or pin 15. This position gives the brake-beams their greatest throw or, in other words, carries them quickly from a position well free from the car-wheels into close proximity therewith. The lever-bar 8, moved by the brake-rod 7, is drawn toward the position shown in dotted lines in Fig. I, and as it moves the roller 14 runs along said lever-bar toward the center pivot-pin 11. This movement of the stirrup away from the point where the power is applied toward the fulcrum or point where the lever-bar 8 is pivoted will result in a given power, applying a much greater force to the brake-beams than if the stirrup 13 remained out at the end of the lever-bar 8. The initial movement already described throws the brake-beams against or

close to the wheels and the completed movement applies a much greater force to the brake-beams just when such force is required.

It will be readily seen that the two ends of the lever-bar 8 work reciprocally and that the said lever-bar may be operated from either end of the car.

In Fig. VI, I have shown a modified form of hanger, in which the lever-bar 8 is secured thereto by means of what is known as a "floating center pivot-pin." The said hanger is provided with an elongated slot 21, in which works a center pivot-pin 22, fastened to the lever-bar and on which the said lever-bar is fulcrumed. This construction possesses advantages in that the whole force applied is equalized and distributed evenly to all the brake-beams used.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. A car-brake comprising a lever-bar having oppositely-extending arms formed with parallel vertical sides providing roller-tracks on opposite sides of the lever-bar and having stops adjacent to the ends of the arms, a hanger in which the lever-bar is centrally pivoted between the trucks of the car, the inner and outer brake-beams, the oblique levers pivoted to the outer brake-beams, the intermediate rods connecting the inner ends of the oblique levers with the inner brake-beams, the connecting-rods secured to the outer ends of the oblique levers, the stirrups secured directly to the connecting-rods, embracing the

arms of the lever-bar, adapted to slide side-wise thereon, and limited in their outward movement by the stops, the cylindrical rollers mounted in the stirrups and adapted to run on the opposite sides of the lever-bar, the crank-shafts having arms, the brake-rods connected with the outer ends of the lever-bar, and the chains connecting the brake-rods with the shaft-arms; substantially as described.

2. A car-brake comprising a lever-bar having stops adjacent to its ends, a hanger having a slot and located between the trucks of the car, a floating pivot working in the slot and by which the lever-bar is centrally pivoted, the inner and outer brake-beams, the oblique levers pivoted to the outer brake-beams, the intermediate rods connecting the inner ends of the oblique levers with the inner brake-beams, the connecting-rods secured to the outer ends of the oblique levers, the stirrups secured directly to the connecting-rods and adapted to slide sidewise on the arms of the lever-bar and limited in their outward movement by the stops, the rollers mounted in the stirrups and adapted to run on the opposite sides of the lever-bar, the crank-shafts having arms, the brake-rods connected outside of the stops with the outer ends of the lever-bar, and the chains connecting the brake-rods with the shaft-arms; substantially as described.

JOHN L. BLACK.

In presence of—
STANLEY STONER,
E. S. KNIGHT.