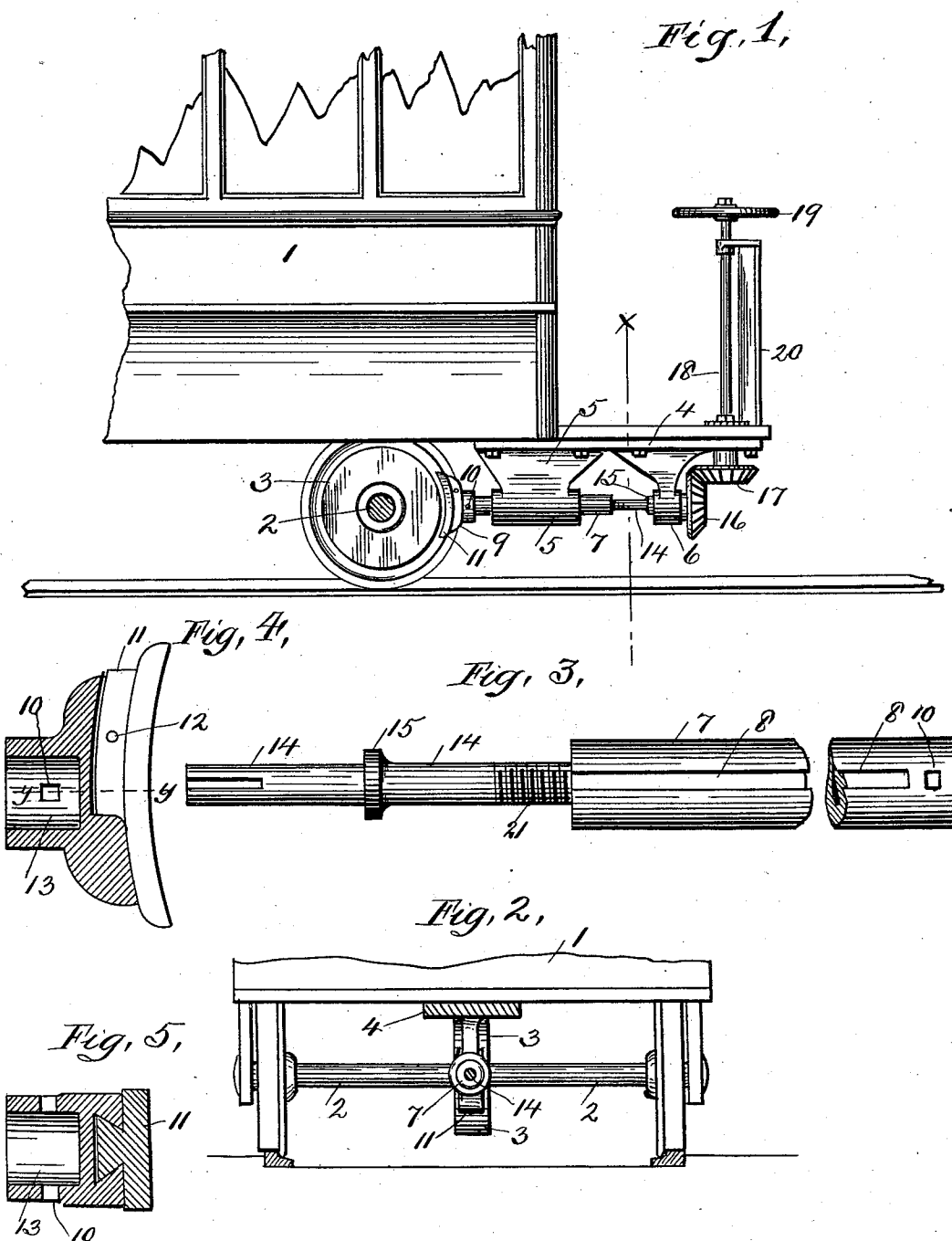


(No Model.)

J. T. DUFF.
CAR BRAKE.

No. 523,763.

Patented July 31, 1894.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN T. DUFF, OF PITTSBURG, PENNSYLVANIA.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 523,763, dated July 31, 1894.

Application filed February 20, 1894. Serial No. 500,873. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. DUFF, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improved car brake, and it consists in a disk attached to one of the axles of the car, a horizontally moving brake shoe, and means for moving said shoe, together with certain details of construction and combination of parts as will be fully described hereinafter.

In the accompanying drawings, Figure 1. is a side elevation of a portion of a street railway car, provided with my improved brake which is constructed in accordance with my invention. Fig. 2. is a front sectional elevation of the same, said section taken on the line *x. x.* of Fig. 1. Fig. 3. is an enlarged side elevation of the two shafts used in operating the brake shoe. Fig. 4. is an enlarged side sectional elevation of the brake shoe holder, showing the shoe in position. Fig. 5. is a sectional plan view of the same, said section taken on the line *y. y.*

To construct a railway brake in accordance with my invention, and adapt the same to an ordinary street railway car 1. I attach in a suitable manner to the front axle 2, a hardened metal disk 3. This disk 3. is arranged at or near the center of the axle, and may be formed in two sections bolted together when arranging the brake on cars that have been in use for some time; or the same may be cast with or shrunk on the axle. Arranged at the front of this disk 3. and in line with the same is a frame 4. securely bolted beneath the floor of the car 1. and having two integral bearings 5. 6. These bearings are bored smooth, and the one 5 at the rear of a greater diameter than the other. Operating in the rear bearing 5 is a strong shaft 7, having a central threaded opening extending in

the direction of its length in which a threaded shaft 14. is made to operate. This last mentioned shaft 14. is formed with a threaded part 21. and a collar 15. said collar bearing against the rear of the bearing 6. and is fitted at its forward end with a bevel pinion 16. The rear end of the large shaft 7. is provided with a shoe holder 9, consisting of a casting having an annular opening 13. for the reception of the rear end of the shaft 7. and a dove-tailed recess in which the removable shoe 11. is secured by a pin or bolt 12. This large shaft 7. is prevented from turning in its bearing 5 by means of a key way 8. and spline formed in the bearing, leaving the said shaft free to move in the direction of its length. Arranged in a vertical position at the forward end of the car 1 is a shaft 18. fitted with a hand wheel 19. at the top, and provided with a bevel gear 17. at the bottom, said gear being in mesh with that 16 attached to the forward end of the small horizontal shaft 14.

In operation: when it is desired to set the brake and thereby retard or stop the car 1. the operating hand-wheel 19. is revolved, which turns the bevel gearing 16. 17. and thereby rotates the shaft 14. This shaft being confined in its bearing 6. is prevented from end movement and by its rotary movement withdraws the threaded portion 21 partly from the large shaft 7. This withdrawal will move the large shaft 7 toward the disk 3. and move the brake shoe against the same thereby creating sufficient friction to stop or check the car as desired. By this construction and arrangement a slight movement of the hand wheel will set or release the brake, and by the combined force or leverage of the screw thread 14. the gearing 16. 17. and hand wheel 19. the wheels of the car may be locked or released instantly.

Having thus described my invention, I claim—

In a car brake the combination consisting of the disk 3. attached to the axle of the car, the frame 4 beneath the floor of the car and in line with the said disk, suitable bearings 5. 6. formed integral with said frame, shafts 7. 14 arranged in said bearings the one connected to the other by means of screw threads,

a brake shoe holder 9. attached to the larger shaft, and a bevel gear 16 attached to the smaller shaft 14. the gear 17. in mesh with the gear 16. and attached to a vertically arranged shaft 18. fitted with an operating wheel 19. all arranged and combined for service, substantially as and for the purpose described.

In testimony that I claim the foregoing I hereunto affix my signature this 18th day of December, A. D. 1893.

JOHN T. DUFF. [L. S.]

In presence of—

JOHN C. THOMPSON,
J. A. HERRON.