S. TOMPKINS.

DOUBLE LEVER CAR BRAKE.

APPLICATION FILED MAR. 26, 1913.

1,091,602.

Patented Mar. 31, 1914.

2 SHEETS—SHEET 1.

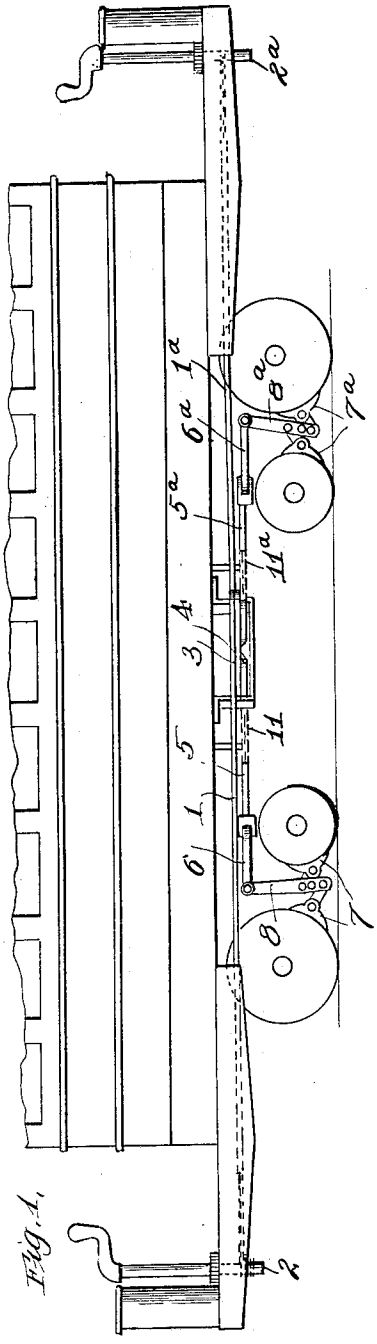


Fig. 1.

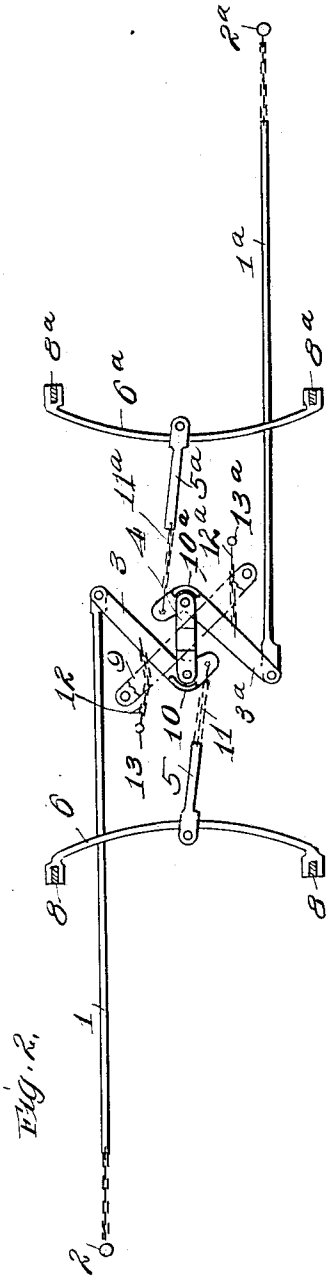


Fig. 2.

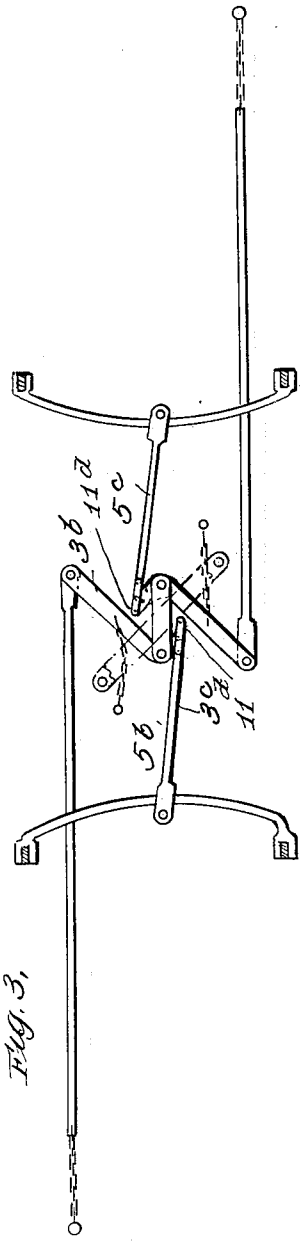


Fig. 3.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 5.

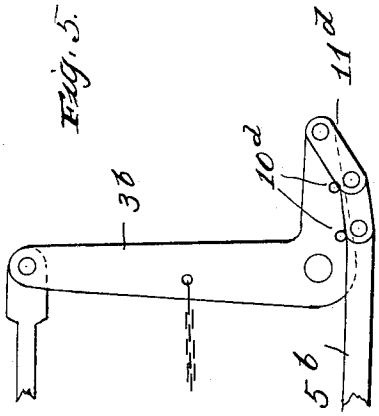


Fig. 7.

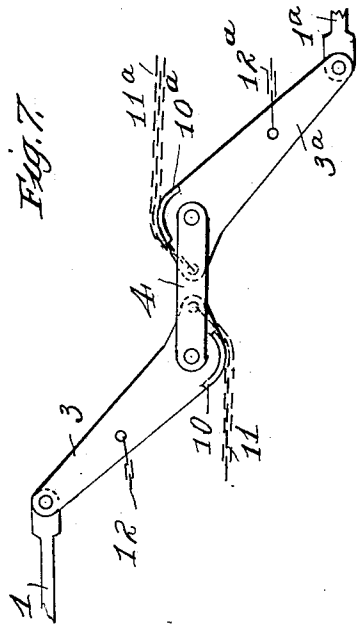


Fig. 4.

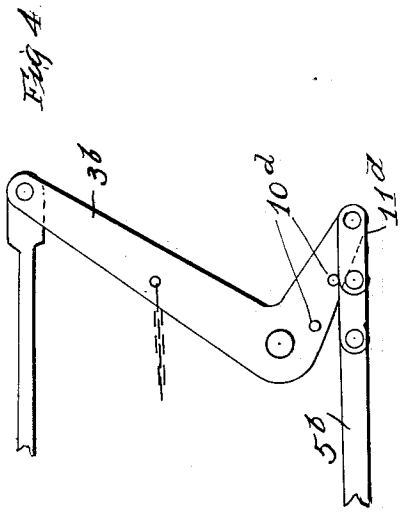
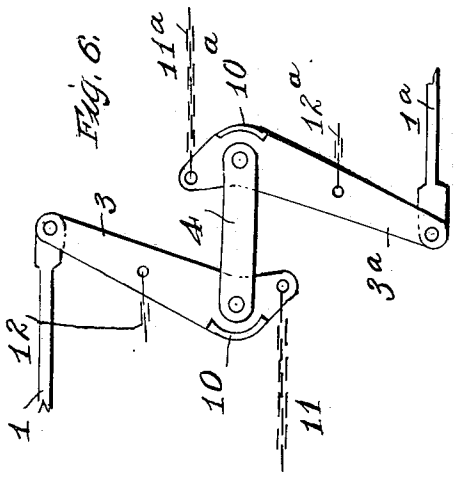


Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

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DOUBLE-LEVER CAR-BRAKE.

1,091,602. Specification of Letters Patent. **Patented Mar. 31, 1914.**

Application filed March 26, 1913. Serial No. 757,032.

To all whom it may concern:

Be it known that I, STONEWALL TOMPKINS, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Double-Lever Car-Brakes, of which the following is a specification.

This invention relates to car brakes operated by a motorman, from either end of the car by means of a winding staff connected to one of a pair of brake levers each actuating a set of brake shoes, said levers being so arranged as to apply greater pressure to the brake shoes of the motorman's end of the car.

The main object of the invention is to construct these levers in such a manner that the effective ratio of the leverage in applying the brakes shall gradually increase when the brake-shoe pressure increases (or they may be constructed so that this effective leverage may gradually increase up to, but not beyond, a predetermined maximum when the brake pressure increases). The result of such a construction is that the slack may be taken up very rapidly when there is little or no shoe pressure, but that when this pressure becomes great the increase of leverage will make it easy to apply this great pressure.

In the accompanying drawings, two embodiments of the invention have been illustrated, in which—

Figure 1 shows a side elevation of a street car having a double truck brake system; Fig. 2 is a plan view of the brake rigging; Fig. 3 is a plan view of a second embodiment of this invention; Fig. 4 is a detail view of the L-shaped lever, in the second embodiment; Fig. 5 a different position of the same lever with the power applied; and Figs. 6 and 7, idle and working positions respectively of the levers of the first embodiment of the invention.

Referring now more particularly in Figs. 1 and 2, 1 and 1^a represent the tension rods connected in the usual manner with the winding chains to the brake staffs 2 and 2^a. The two levers 3 and 3^a are hinged to the other ends of the connecting rods 1 and 1^a and connected with each other by means of a link 4. These levers are both L-shaped, with the shorter leg inward at the free end of which a chain 11 and 11^a connects each lever with its respective brake rod 5 and 5^a. At the other end of these brake rods are carried the usual yokes 6 and 6^a respectively, which yokes actuate the brake shoes 7 and 7^a, by means of intermediate arms 8 and 8^a.

The two levers 3 and 3^a are supported to float in a hanger 9. In the elbow of the levers is provided a cylindrical flange or hub 10 and 10^a, the purpose of which is to prevent the line of action getting on the dead center when the brakes are applied, and also to prevent an increase in leverage ratio beyond the desired maximum. As will be seen from the drawing, see Fig. 7, when the brake is applied and the connection rod 1, for instance, is drawn forward, that is to the left of the drawing, the chain 11 will be wound up on the cylindrical hub 10, thus giving a constant leverage to the brake rod 5, after lever 3 has moved through a certain angle.

A little distance in from the end of the long leg of the levers 3 and 3^a is attached a chain 12 and 12^a. These chains are secured to a fixed point 13 and 13^a in the car body. In applying the forward brake as just stated, the chain 12 will be slack, but chain 12^a will be taut so that a diminishing in leverage will take place in the transmission of power to the brake shoes on the rear truck. In applying the brakes, by means of the brake staff 2^a, at the other end of the car, the opposite will be the case, so that chain 12^a will be slack and chain 12 will be taut. These chains may be replaced—and their purpose served—by a stationary pin or stop for each lever which will limit the motion of the lever (in one direction only) just as the chain would.

Figs. 3, 4, and 5 illustrate a modified embodiment of the invention. In this case the brake rod 5^b is connected to the short end of the L-shaped lever 3^b by means of what may be called a bicycle chain 11^d. Instead of the curved flange or cylindrical hub 10, one or more stop pins 10^d have, in this case, been provided, against which the bicycle chain 11^d abuts and is partially rolled up when the power is applied at the longer arm of the L-shaped lever. These stops 10^d are spaced on the L-shaped lever so that they will abut against the respective joints of the chain during the turning of the lever. When power is applied, the leverage will gradually diminish so that one joint of the chain after the other will act as a wrist pin for the lever.

I claim:

1. In a wheel brake for cars comprising a pair of L-shaped levers, a link connecting the elbows of said levers, a chain connecting the shorter end of each of said levers with the brake shoes and a cylindrical flange on each of the levers concentric with the fulcrum of said connecting link, constructed to permit said chain to roll up around said flange after the lever has been turned through a certain angle and power applied at the longer leg of one or the other of said levers.

2. In a wheel brake for cars having two trucks, a pair of L-shaped levers, a link connecting the elbows of said levers, a chain for each lever connecting its shorter end with the brake shoes and a cylindrical flange on each of the levers concentric with the fulcrum of said connecting link, constructed to permit said chain to roll up around said flange after the lever has been turned through a certain angle and power applied at the longer leg of said levers.

3. In a wheel brake for cars having two trucks, a pair of L-shaped levers, a link connecting the elbows of said levers, a chain for each of said levers connecting the shorter ends of the lever with its respective brake shoes, and a cylindrical flange on each of the levers, said flange being concentric with the fulcrum of said connecting link and constructed to permit said chain to roll up around said flange after the lever has been turned a certain angle and power applied at the longer leg of said levers; a second chain for each lever, one end of which being rigidly attached to the body of the car and the other end thereof secured to the longer leg of the lever at a point between the elbow and the point of power application; whereby on applying power on one of said levers, said second chain on the same lever will become slack while the second chain on the other lever will become taut.

4. In a wheel brake for cars comprising a pair of L-shaped levers, a link connecting the elbows of said levers, a chain connecting the shorter end of each of said levers with the brake shoe mechanism and a flange on each of said levers constructed to permit said chain to roll up around said flange, and power applied at the longer leg of one or the other of said levers.

5. In a wheel brake for cars, comprising a pair of L-shaped levers, a link connecting the elbows of said levers, a pair of rods for each lever terminating with hinged joints, one of each pair of said rods to connect the shorter end of each of said levers with the brake shoe mechanism, its hinged joint having a plurality of links, projections on said levers against which the links of the hinged joints will abut, said hinged joints in turn becoming wrist pins for the L-shaped lever providing shorter leverage for actuating the brake shoe mechanism.

The foregoing specification signed at New York city this 14th day of March, 1913.

STONEWALL TOMPKINS.

In presence of two witnesses:
S. J. GENSLER,
K. A. RILEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."