TATHAM & STEGER.

Car Brake.

No. 83,422. Patented Oct. 27, 1868.

Witnesses
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Letters Patent No. 83,422, *dated October* 27, 1868.

IMPROVED CAR-BRAKE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, BENJAMIN TATHAM and JOSEPH STEGER, of the city, county, and State of New York, have invented a new and useful Improvement in Car-Brakes; and we do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a longitudinal vertical section of this invention.

Figure 2 is an inverted plan thereof.

Similar letters indicate corresponding parts.

This invention relates to an improvement in that class of car-brakes, the operation of which is based upon a friction-plate, which connects with the brakes, and is placed between two rollers, or between an axle and a roller, so that, when said rollers are pressed together, the plate is drawn in, and the brakes are applied, as fully described in an application of JOSEPH STEGER for a patent, which was allowed, April 9, 1868, but which invention operated only when the wheels of the car revolved in one given direction, so that, in order to provide for each direction, in which the car was to be moved, a double set of plates was necessary.

The object of our invention is to remedy this objection, and it consists in the application of a reversing-arrangement, in combination with the friction-plate and the brakes, by which the latter are brought in contact with the wheels, in whatever direction the cars may be moving.

In the accompanying drawings, A represents the platform of a railroad-car, which is supported by one or two trucks, B B′.

In the drawing, we have represented a car with two trucks, but our present improvement is also applicable to cars with a single truck, such as are in general use on horse-railroads.

Each of the trucks runs on two pairs of wheels, D, which are secured to the axles C C*.

Opposite the axle C (either below or above) is a roller, E, which has its bearing in a slotted lever, F, that is hinged to a cross-bar, G, of the truck, and the loose end of which is suspended from the brake-rope or chain H.

Between the roller E and the axle C* is placed a plate, I, the ends of which connect with levers J J′, situated at the opposite ends of the car, and secured to the brake-heads K K′ by means of pivots *a*, as shown in the drawing.

The connection between the friction-plate and the levers J J′ is effected by rods *b b′*, the rod *b* extending from the friction-plate to one end of the lever J, and the rod *b′* to the corresponding end of the lever J′, while the opposite ends of the levers J J′ are connected by a rod, *c*. The lever J connects also with the brake-head K*, the connection being effected by rods *d d**, which are secured to said lever, on opposite sides of its fulcrum, (see fig. 2,) and, in the same manner, a connection is effected between the lever J′ and the brake-head K′* by rods *d′ d′**, which are secured to the lever J′, on opposite sides of its fulcrum.

The rods *d d**, *d′ d′** are secured to the brake-heads K* and K′*, respectively, by links or other means, so that each rod obtains a certain flexibility, the necessity of which will be apparent from the description.

The brake-rope or chain H, which supports the loose end of the lever F, extends, over rollers *f*, to the windlass at the ends of the car, or it may be made to extend, at one end, to the windlass of the locomotive or front car, and, at the opposite end, to a hook, fixed firmly in the rear car of the train, so that one and the same rope or chain acts on the levers F of all the cars in the train, and so that the engineer or brakeman of the front car is enabled to apply the brake to all the cars of the train, commencing with the rear car, the brake of which will be first applied, the chain being fast to this car.

When a strain is exerted on the chain, the lever F is raised, and the friction-plate I is clamped between the roller E and the axle C*.

If the car moves in the direction of arrow 1, marked on it in fig. 1, the friction-plate is drawn in by the revolution of the axle C* in a direction opposite to said arrow, and a strain is exerted on the lever J′ through the rod *b′*. This lever, therefore, turns in the direction of arrow 2, fig. 2, and, by the action of the rod *d′**, both brake-heads, K′ K′*, are drawn together, and the brakes on the truck B′ are applied. At the same time the motion of the lever J′ is transmitted, by the rod *c*, to the lever J′, this lever turns in the direction of the arrow 3, and the brake-heads K K* are drawn together by the action of the rod *d*, so as to apply the brakes on the truck B simultaneously with those on the truck B′.

As the brake-heads are drawn together, by the action of the rods *d′** and *d*, the rods *d* and *d** have to yield or bend, and, for this reason, we have made them flexible, as previously stated.

If the car moves in the opposite direction, the brakes are applied by the action of the rods *d** and *d′*, as will be readily understood from the previous explanation.

If our present improvement is applied to a car resting on a single truck, B, the reversing-lever J′, instead of being applied to the brake-head K′, will be applied to the brake-head K*, but the operation of the brake will be precisely the same as above described.

The power required for applying the brakes is derived from the action of the axle and roller E on the friction-plate I, and a comparatively small pressure exerted on the lever F is sufficient to cause said friction-plate to be drawn in with considerable force, so that the brakeman has to expend but very little power to stop a car.

If the chain or rope H extends throughout the whole length of the train, the brakes of all the cars can be

applied from the engineer's stand, or from the front car, with comparatively little exertion, since the brakes are applied entirely by the action of the friction-plates, and the chain has to be strained only just enough to clamp these plates between the rollers E and the respective axles, either by the plates I, or by friction-rollers, or other means.

We do not confine ourselves to the precise form of apparatus herein described, as it may be varied by the substitution of pulleys or rollers in lieu of levers, or by other means which will readily suggest themselves to any practical mechanic, without departing from the substantial originality of our invention, which consists in the application of a reversing-arrangement to the motion of the plate or axle, by which the brakes are brought in contact with the wheels, in whatever direction the car may be moving, and also in the means by which the brakes on a train of cars may be simultaneously brought into action by a chain or rope, in combination with a series of levers, bearing upon the axles, either by the plates I, or by friction-rollers, or other means.

We disclaim everything shown and described in the application of JOSEPH STEGER for a patent on improved car-brakes, allowed, April 9, 1868; but

What we claim as new, and desire to secure by Letters Patent, is—

1. The reversing-arrangement, as herein substantially described, by which the brakes of a car may be brought into alternate action by the motion of the plate and axle.

2. The means, as herein substantially described, of applying the brakes simultaneously upon the wheels of a series of cars by the combined operation of a connecting-rope, chain, or rod, upon a series of levers, one on each car, the levers having friction-rollers, and acting, by the revolution of the axles, on the brakes, as set forth.

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Witnesses:
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