H. MAEY.

CAR-BRAKES.

No. 194,449. Patented Aug. 21, 1877.

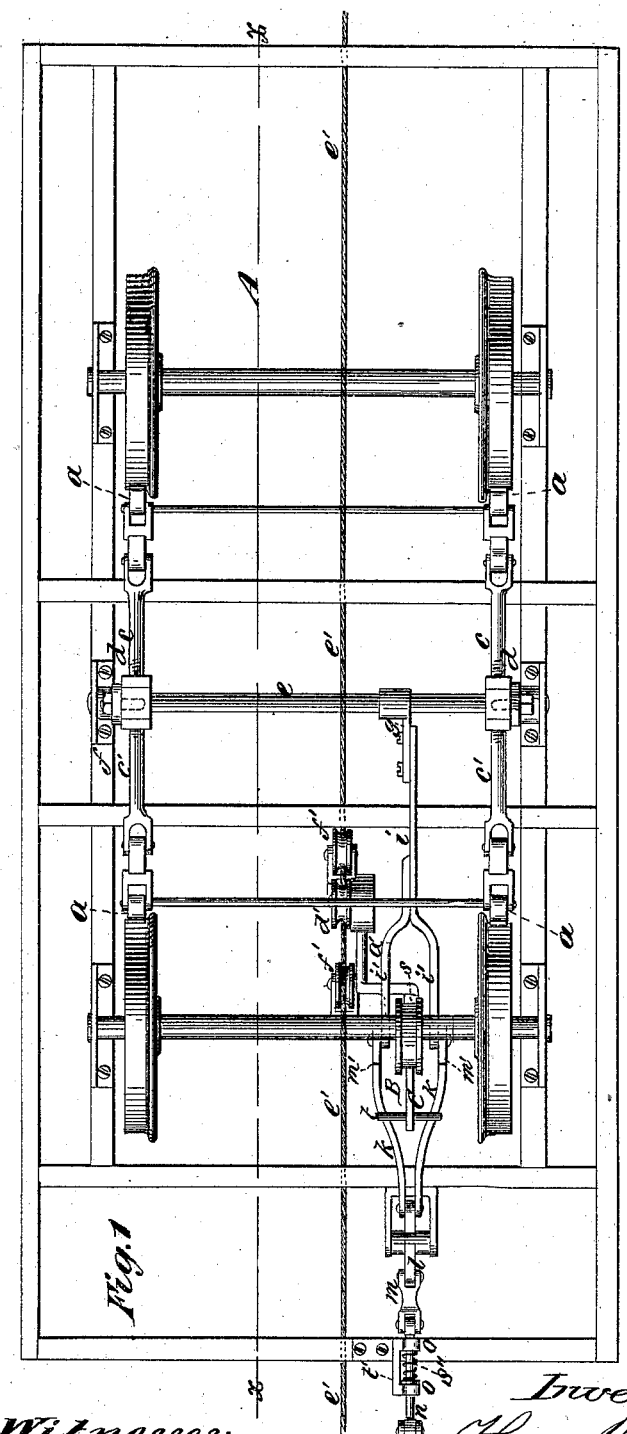

Fig. 1

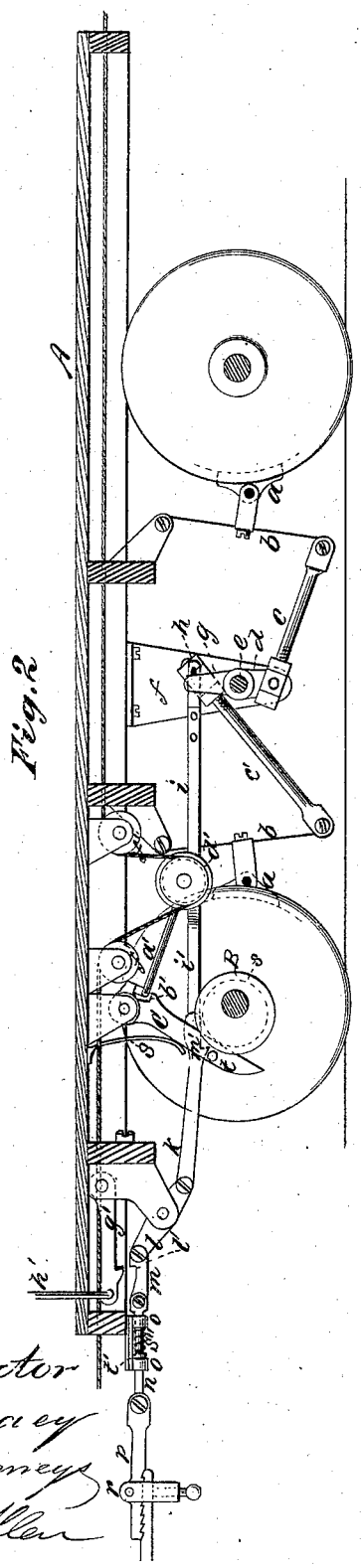

Fig. 2

Witnesses:

Jas. Haynes

Edward B. Sparry.

Inventor

Henry Maey

by his Attorneys

Brown & Allen

UNITED STATES PATENT OFFICE.

HENRY MAEY, OF ZURICH, SWITZERLAND.

IMPROVEMENT IN CAR-BRAKES.

Specification forming part of Letters Patent No. **194,449**, dated August 21, 1877; application filed June 28, 1877.

To all whom it may concern:

Be it known that I, HENRY MAEY, of Zurich, in the Republic of Switzerland, have invented an Improved Brake for Railway-Carriages; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification.

Figure 1 in the accompanying drawing is an inverted plan view, and Fig. 2 a vertical section made on the line *x x* in Fig. 1.

The general features of the invention are the automatic application of the brake-shoes, which are attached to elastic levers by means of an eccentric or cam on one of the car-axles, and intermediate mechanism, which presses the brake-shoes on the wheels, the continued application of the brake-shoes to the wheels, after the action of the eccentric has ceased, by means of a locking device, which holds the shoes so pressed to the wheels until said locking device is released from its control over the other mechanism, and the automatic removal of the brake-shoes from the wheels when the locking device is released, such removal being effected by a weighted lever, assisted or unassisted by springs, which weighted lever, when raised, as hereinafter described, permits the automatic action of the brakes.

The brake-shoes *a*, of steel or wrought-iron, are attached by flat springs *b* to the truck A or body of the car or locomotive, the said shoes being preferably attached to said springs at or about the middle of the springs. To the lower ends of the springs are attached the pressure-rods *c c'*. The pressure-rods *c* are also pivoted at the ends opposite the springs to the lower ends of rock bars or levers *d*, attached to a rock-shaft, *e*, supported by brackets *f*. The pressure-rods *c'* are pivoted to the upper ends of the said rock-bars *d*. Between the rock-bars *d* is a rock-lever, *g*, rigidly attached to the rock-shaft *e*. The said rock-bars *d*, rock-shaft *e*, and rock-lever *g* may be considered as a single lever or a system of levers for applying the brake-shoes.

To the outer end of the rock-lever *g* is pivoted, through a slot, *h*, Fig. 2, the drawing-bar *i*, preferably, but not necessarily, bifurcated at *i'*. Said bar *i* is also pivoted at the extremities of the bifurcations *i'* to the bars *k*, for which a bifurcated or a single bar may be substituted, and which may, therefore, be considered as constituting a compound bar. Said compound bar *k* is in its turn pivoted to one end of a rock-lever, *l*, the other end of which is pivoted to a link, *m*, which connects it with a sliding rod, *n*, which slides in bearings *o o*, fastened to the car-truck. To the end of the sliding bar *n* is pivoted a connecting-bar, *p*, serrated at its outer end, and furnished with a clamping device, *r*, for joining it to another serrated bar attached to the braking apparatus of another car, as indicated in Fig. 2. By this means the brake can be made continuous throughout a train; but when the invention is to be applied to only one car, the rock-lever *l* and the serrated bar *p* are omitted, and the compound rod *k* is directly pivoted to the sliding rod *n*, the rod *k* being in that case provided with a hooked notch on its upper side, near its junction with the rod *n*, to take the place of a similar hooked notch, *l'*, formed on the upper side of the link *m*, as hereinafter described.

To one axle of the car is rigidly attached an eccentric or cam, B, having preferably formed in it a rectangular groove, *s*. To the truck or body of the car or locomotive, in proper relation with said eccentric, is pivoted a swinging lever, C, which may be operated either by direct pressure of the eccentric B on that part of the said lever C which enters the groove *s*, or by pressure of the rims on each side of the said groove in said eccentric upon a cross-bar, *t*, inserted through the lower part of said lever.

To the truck is also pivoted a weighted lever, *a'*, which acts upon a shoulder, *b'*, formed upon the lever C, when said lever *a'* is not raised, as hereinafter described, the action of the lever *a'* being to push the lever C away from the eccentric B, and, through the cross-bar *t*, to raise and hold suspended the rods *i* and *k*.

On the weighted end of the lever *a'* is placed a pulley, *d'*, over which passes a cord, *e'*, said cord also passing over pulleys *f' f'*, attached to the bottom of the car-truck.

To the under side of the car is also pivoted a hook-pawl, *g'*, provided with a vertical lift-

ing-rod, h', which extends upward to and above the platform of the car.

The cord e' is united by hooks and eyelets to the cords of other cars, and, after passing over the pulleys d' and f', is carried through iron tubing, and attached to the balustrade or railing of the platform.

On the upper side of the link m is formed a hooked notch, l', in proper relation for the engagement of the pawl g', and on the under side of bar k is formed a hooked notch or hooked notches, m', in proper relation with the cross-bar t in the lever C for the engagement of said cross-bar, as hereinafter described.

The notch l' and pawl g' form a locking device for holding the brakes applied as hereinafter described, the position of the locking device being more convenient under the platform of the car; but this position may be changed, and the locking device placed elsewhere over the bars k or i, which must then be notched on the upper side to engage the said pawl.

The operation of the brake is as follows: When the cord e' is drawn sufficiently to raise the weighted lever a', the lever C oscillates toward the eccentric or cam B, thereby bringing the cross-bar t into engagement with the notch or notches m' in the compound bar k, the weight of said bars and the drawing-bar i causing them to assume a lower position, limited by contact with the cross-bar t. The eccentric B then, in a single revolution, presses the brake-shoes upon the wheels through the medium of the drawing-rod i, lever g, rock-shaft e, rock-bar d, and pressure-rods c and c'. At the same time the compound bar k is thrust forward, and, moving the rock-lever l, draws back the link m till the notch l in said link is engaged by the hook-pawls g'. This locks the brakes, and the brake-shoes thereafter remain applied to the wheels, until released by lifting the hook-pawl out of its engagement with the notched link m, which is done by means of the lifting-rod h', when all the parts resume their former positions and relations with each other.

It will be seen that the cord e' needs only to be temporarily tightened, for, as soon as the engagement of the cross-bar t in the lever C engages the notches m' in the compound bar k, the braking must be effected.

If desired, a spring, s', may be employed to bear upon the lever C, and insure a quicker action of the same.

A spring, s'', may also be employed between the bearings o o of the sliding bar n, which, acting against a collar, t', formed on said bar, aids the weighted lever in raising the suspended parts into the positions occupied by said parts before the brakes are applied.

I claim—

1. The combination, with the elastic levers b, attached to the car, locomotive, or carriage, and having brake-shoes attached to their central portions, of pressure-rods c c', attached to the lower ends of said elastic levers, and a lever or system of levers, e g d, for operating the same, to apply the brake-shoes to the wheels, substantially as and for the purpose set forth.

2. In combination with the brake-shoes and a system of levers and rods for operating the same, an eccentric or cam on one of the car-axles, operating through the medium of a lever, C, upon said system of levers and rods, to apply the pressure to the brakes at one revolution of the cam, substantially as herein specified.

3. In combination with the brake-shoes, a system of rods and levers, and an eccentric or cam on the car-axle, for operating the same, the weighted lever a', for restraining the action of the brakes, and the cord e', for raising said lever a' and allowing the brakes to act automatically, substantially as and for the purpose set forth.

4. The combination, with the mechanism for automatically applying the brakes, the compound bar k, rock-lever l, notched link m, and pawls g', the whole adapted to operate together to lock the brakes, as set forth.

5. The combination, with the braking mechanism, constructed and operating substantially as above described, of the pushing-rod k, rock-lever l, link m, and sliding rod n, for rendering the brakes continuous throughout the train when cars are coupled together, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of July, 1876.

HENRY MAEY.

Witnesses:
PH. E. MARK,
Imperial German Consul.
CARL GERNER.