S. P. TALLMAN.

Car-Brake.

No. 222,163. Patented Dec. 2, 1879.

Fig. 1.

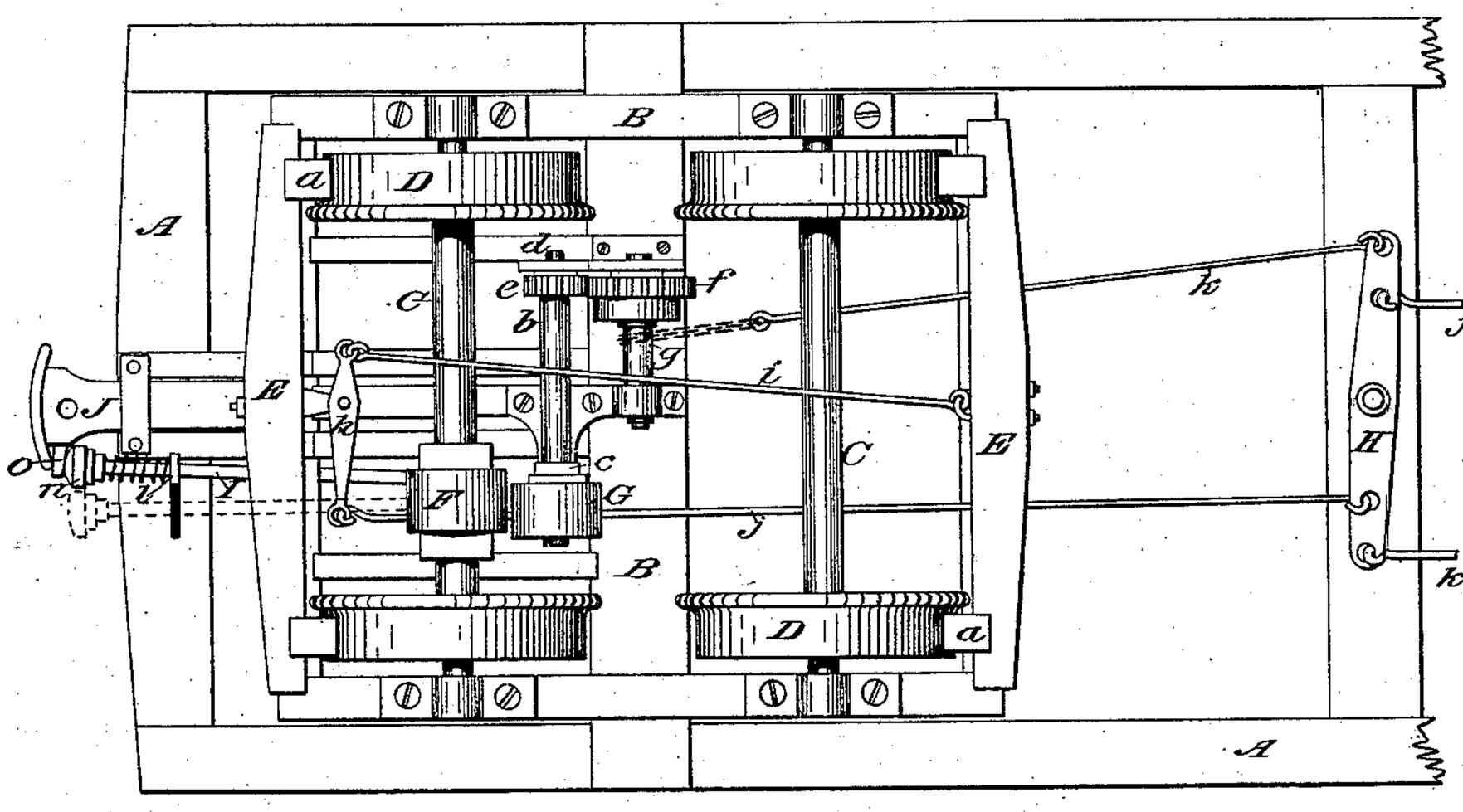


Fig. 2.

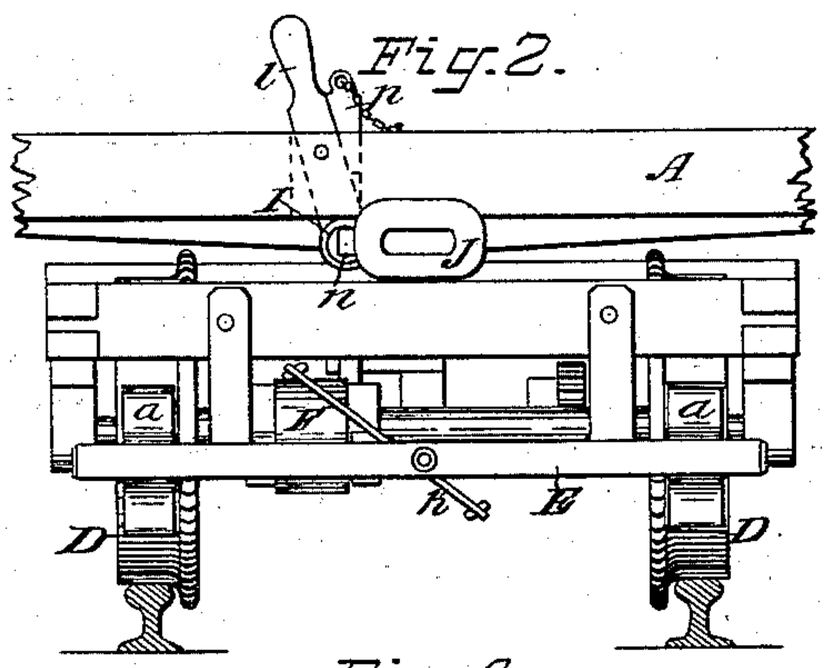


Fig. 3.

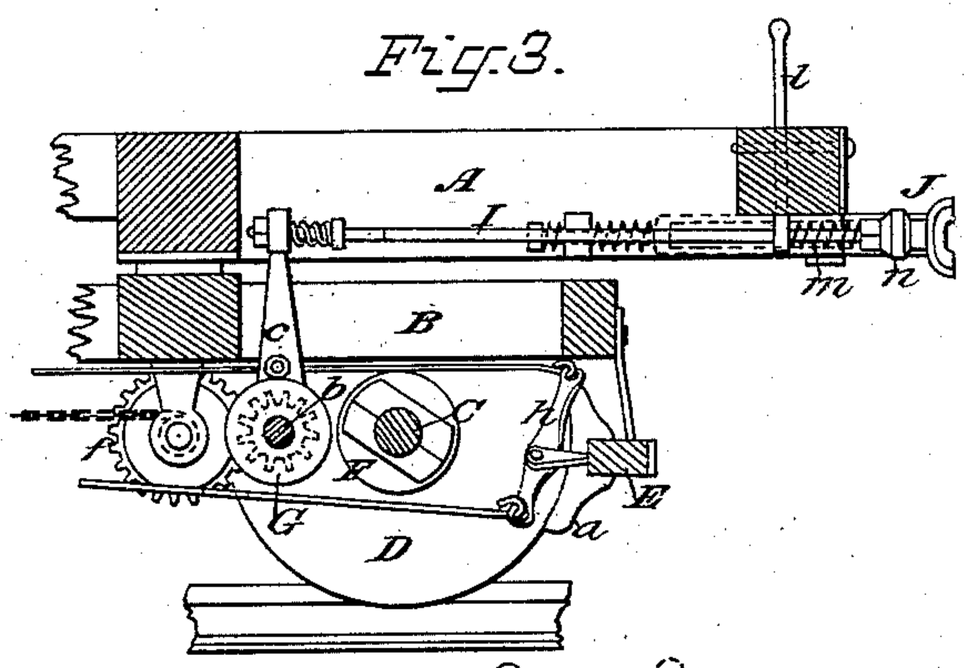


Fig. 4.

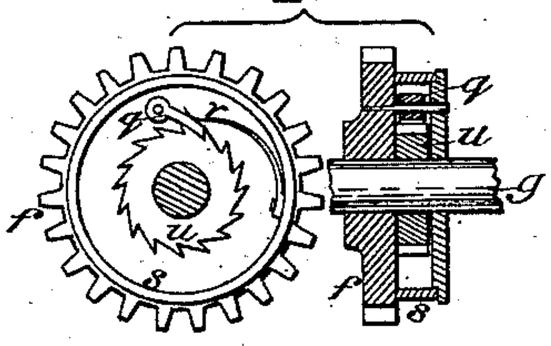


Fig. 5.

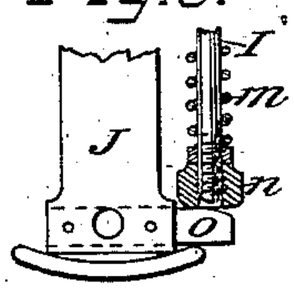
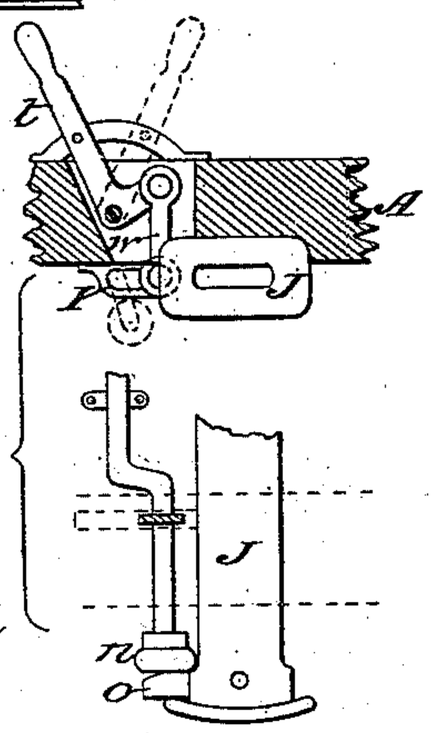


Fig. 6.



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STEPHEN P. TALLMAN, OF DUNELLEN, NEW JERSEY.

IMPROVEMENT IN CAR-BRAKES.

Specification forming part of Letters Patent No. **222,163,** dated December 2, 1879; application filed September 25, 1879.

To all whom it may concern:

Be it known that I, STEPHEN P. TALLMAN, a citizen of the United States, and a resident of Dunellen, in the county of Middlesex and State of New Jersey, have invented certain new and useful Improvements in Automatic Car-Brakes, of which the following is a specification.

This invention relates to that class of brakes for railway-cars in which the checking of the engine, and the consequent closing of the cars upon each other by their momentum, serves to set the brakes upon the wheels; and it embodies certain improvements upon the invention for which I was granted a patent August 26, 1879, No. 218,838, which improvements will be hereinafter fully set forth.

In the drawings, which serve to illustrate my invention, Figure 1 is a bottom view or plan of one-half of a car-bottom, showing one truck and the evener between the trucks. Fig. 2 is a front elevation of the same. Fig. 3 is a vertical longitudinal section. Fig. 4 represents two enlarged views of the ratcheted gear-wheel. Fig. 5 is an enlarged view of the draw-head and push-bar. Fig. 6 illustrates a modification.

Let A represent, generally, the base-frame of the car-body, and B the truck-frame under one end of the same, in which are journaled the axles C C, bearing the truck-wheels D D. E E are the ordinary brake-bars, and *a a* the shoes. All of these may be arranged in the usual way. F is a friction-pulley, fixed on one of the car-axles of the truck, and G is a friction-pulley mounted on an axle or shaft, *b*, one end of which has a bearing in a pendent lever, *c*, and the other a bearing at *d* on the truck-frame, so constructed that the shaft may have a little lateral play. On the shaft *b* is fixed a wheel or pinion, *e*, arranged to mesh with a toothed wheel, *f*, mounted loosely on a windlass shaft or barrel, *g*, which is mounted in bearings on the truck-frame. The peculiar construction of this wheel *f* will be more fully hereinafter explained.

A pivoted lever, *h*, is hung to the end brake-bar, and from one end of this lever a rod, *i*, extends to and takes hold of the other brake-bar, and from the opposite end of the lever another rod, *j*, extends to and takes hold of an evener, H, pivoted or hung to the under side of the car. From the other end of this evener a bar and chain, *k*, extends back to the windlass *g*, upon which it is wound when the brakes are set.

In this construction each truck of the car is provided with a brake mechanism like that shown in the figures; but it is deemed unnecessary to show more than one.

A rod, *j'*, extends from the evener to the pivoted lever *h* at the opposite end of the car, and a rod or chain, *k'*, extends from the opposite end of the evener to the windlass at the opposite end of the car. By the employment of this evener the automatic setting of the brakes at either end of the car sets all of the brakes.

I is a push-bar, the rear end of which passes through an eye in the upper end of the lever *c*, and is provided with a cushion-spring and adjustable set-collar similar to those shown in my former patent before mentioned. This bar I passes through and is supported by a pendent lever, *l*, mounted on the car, and is provided with a retracting-spring, *m*, and an adjustable head, *n*, as clearly shown in Fig. 5, where the said head is shown in section.

When the brake is in operative condition the head *n* takes behind a projecting lug, *o*, or some projecting part of the draw-bar J. The push-bar being hung loosely at its inner end, its head *n* may be readily thrown out from behind the lug *o* by means of the lever *l*, as clearly indicated by the dotted lines in Fig. 1.

Having described thus far the construction of my brake, including the old as well as the new features, I will now describe its operation.

When the cars come together in checking up, the draw-bar J is driven in. This drives in the push-bar I, which pushes back the upper extremity of the lever *c*, and thus brings the pulleys F and G into frictional contact. The rotation thus imparted to the friction-pulley G acts through the gears *e* and *f* to rotate the windlass *g* and wind up the brake-chain *k*, which sets all of the brakes on the car.

Referring to Fig. 4, the gear-wheel *f* is shown as provided with a pawl, *q*, and a pawl-spring, *r*, arranged in a casing, *s*. This pawl engages a ratchet-wheel, *u*, fixed on the windlass-barrel *g*. Thus it will be seen that when

the wheel *f* is rotated in one direction the pawl drives the barrel *g* around with it; but when it is rotated in the opposite direction the pawl plays over the ratchet-teeth and the barrel is not rotated.

As before stated, the brake mechanisms at the opposite ends of the car are constructed precisely alike, but reversed in arrangement—that is, the free ends of the pawls *q* in the two sets point in opposite directions, the one at the front end of the car pointing to the front, and the one at the rear end pointing to the rear; and the ratchets *u* are arranged to correspond with this arrangement of the pawls. Therefore, as I only employ one set of brake mechanism at a time—that at the forward end of the car for the time being, the other set being rendered temporarily inoperative—I am enabled to back the cars without setting the brakes, as the pawl *q*, when the car is moving backward, will ride over the teeth of the ratchet *u*, and not operate the windlass.

It is important in an automatic brake of this class that it be actuated only from the forward end of the car, whichever end be for the time foremost, and that the brake mechanism at the other end be rendered temporarily inoperative. The reason for this is, that when the cars come together in stopping, the brakes are set and remain so. Consequently, when the engine starts, it should relieve the brakes of the first car, and it, in starting, should relieve the brakes of the second, and so on to the end of the train. When the brakes are set and relieved only from the foremost end of the car, this will be the case; but if the brakes are set from both ends of the car, or from the rear ends only, each car must be started with the brakes on. I therefore, in making up the train, render the brakes inoperative from the rear end of each car by throwing over the lever *l*, so as to set the head of the push-bar I clear of the lug *o* on the draw-bar. The draw-bar may then be driven in by the collision of the cars without actuating the push-bar. To maintain this position of the lever *l*, I provide a key or wedge, *p*, which may be inserted into the lever-socket on either side of the lever, and thus prevent it from shifting. This key I consider an efficient device for the purpose; but other devices of a similar character may be employed.

To enable me to adjust the head *n* on the push-bar I, I provide it with an internal thread, and, preferably, a lock-nut, as shown; but it may be made adjustable by other well-known means. I also bevel the head *n* and lug *o*, so as to insure the head passing behind the lug in shifting.

In Fig. 6 I have shown a modification of the device for shifting the push-bar. In this construction the push-bar is bent into a crank shape near its outer end, and the short arm of the bell-crank lever *l* is connected with this crank portion by means of a link, *w*.

The dotted lines in the upper view indicate clearly the operation in shifting. Other equivalent means may readily be devised for shifting the head of the push-bar; and I do not confine myself to the precise construction shown.

In some cases the brakes are omitted from one of the trucks of the car. Where this is the case, I arrange my operative mechanism precisely as shown, omitting only such rods as would be employed to connect the omitted brakes to the operative mechanism and the evener; or, if sets of brakes be employed on both trucks and the evener be omitted, each set of brakes will be operated independently by its operative mechanism; and in such an arrangement, when the mechanism at one end is rendered inoperative, the brakes at that end will not be set from the mechanism at the other end. This arrangement is not, however, desirable.

The evener H is in common use with well-known brake mechanisms for connecting the mechanisms at opposite ends of the car; and I make no claim to it.

The ratchet device may be placed in the pulley G or pinion *e* instead of the gear-wheel *f*, if desired; but, for convenience, I prefer to arrange it in the wheel *f*. If the circumstances of the case require it, I may also employ an intermediate between the wheels *e* and *f*.

The distinguishing features of novelty in my present invention consist partly in the arrangement of a ratchet, not necessarily reversible, in the gear *f*, in connection with the shifting mechanism, whereby the mechanism at one end is rendered inoperative, thus enabling me to back the cars or run them with either end foremost without reversing the pawls, one pawl being arranged, once for all, inversely to the other.

It also consists in the construction and arrangement of the push-bar in such a manner that it may be readily shifted, and in certain minor combinations and arrangements of parts, as will be more specifically set forth in the claims.

I claim—

1. In an automatic car-braking mechanism, the gear-wheel *f*, provided with the pawl *q* and pawl-spring *r*, in combination with the windlass-barrel *g*, provided with the ratchet-wheel *u*, fixed thereon, the pinion *e*, shaft *b*, fixed friction-wheels F G, lever *c*, push-bar I, the draw-bar J, provided with a lug, *o*, and the brake bars, shoes, and rods, all constructed and arranged to operate substantially as set forth.

2. In an automatic car-braking mechanism, the push-bar I, provided with the retracting-spring *m*, and arranged to be shifted substantially as shown, in combination with the draw-bar J, provided with a lug or projection arranged in front of the push-bar, all substantially as and for the purposes set forth.

3. The combination of the head *n* of the push-bar I and the lug *o* on the draw-bar J,

both beveled off or rounded, as shown, so as to insure their engagement in shifting the bar, as specified.

4. The combination of the push-bar I, the lever *l*, connected therewith and arranged to shift the said bar, a suitable key or stop, *p*, and the draw-head J, provided with a projection, *o*, the push-bar being provided with a retracting-spring, and all arranged to operate substantially as set forth.

5. The combination, in a car-braking mechanism, of the draw-bar provided with the lug *o*, the push-bar provided with cushion and retracting-springs, the lever *l*, arranged to shift the push-bar, the lever *c*, shaft *b*, pulleys F G, pinion *e*, toothed gear *f*, provided with a pawl and pawl-spring, the windlass-barrel *g*, provided with the fixed ratchet *u*, and the brake bars, shoes, and chains or rods, all arranged to operate substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

STEPHEN P. TALLMAN.

Witnesses:
HENRY CONNETT,
ARTHUR C. FRASER.