

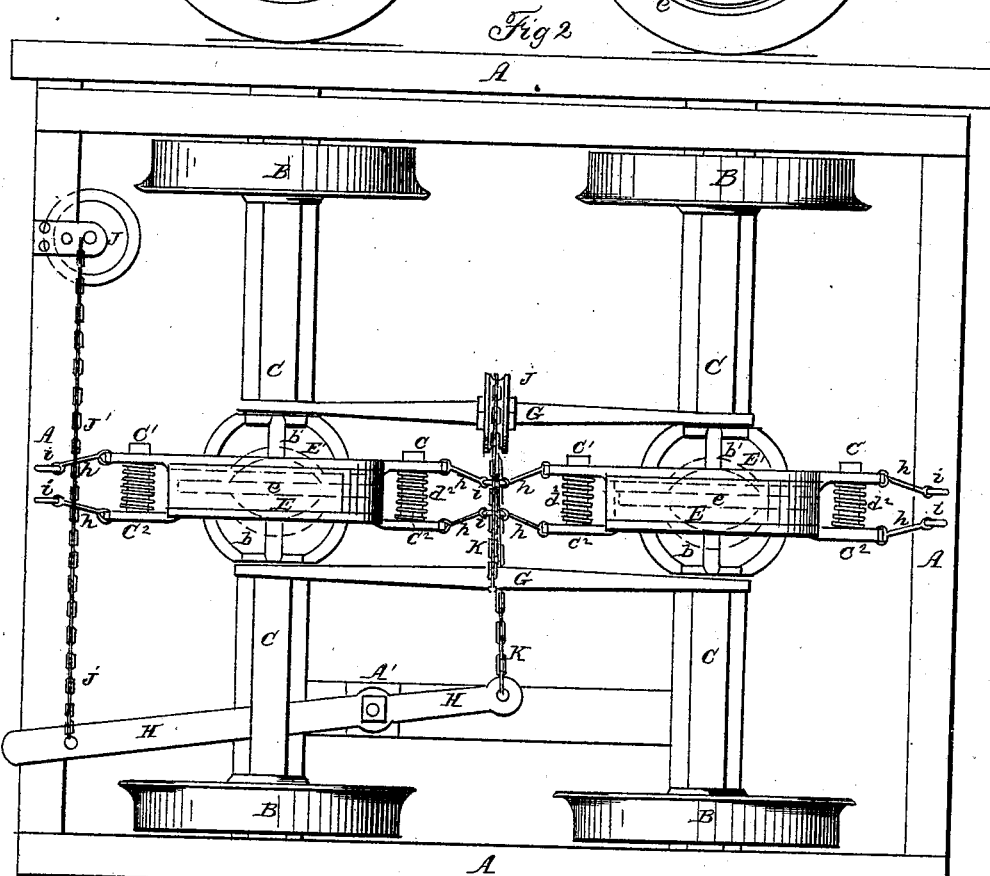
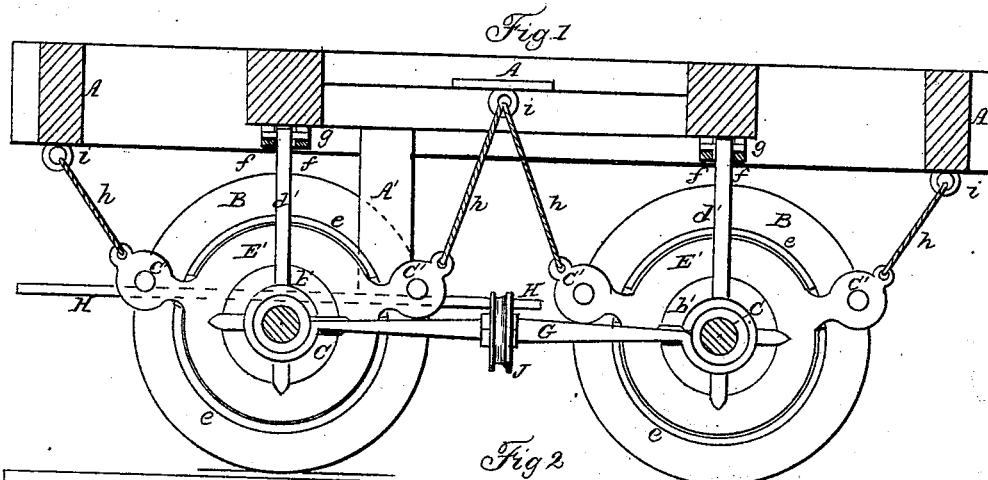
C. H. GUSTIN.

2 Sheets—Sheet 1.

Car Brake.

No. 48,810.

Patented July 18, 1865.



WITNESSES

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INVENTOR:

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Mason Tenney & Lawrence

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2 Sheets—Sheet 2.

Car Brake.

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Fig. 3

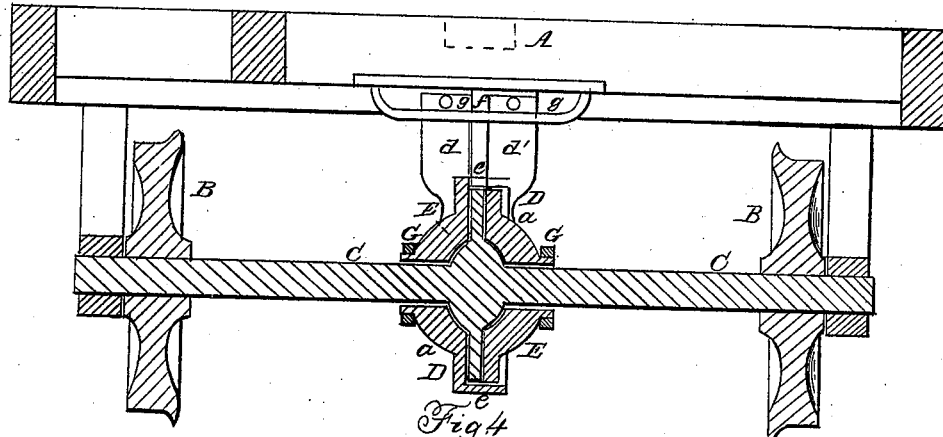


Fig. 4

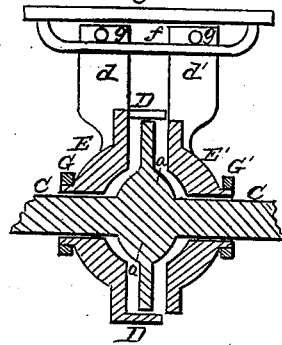


Fig. 5

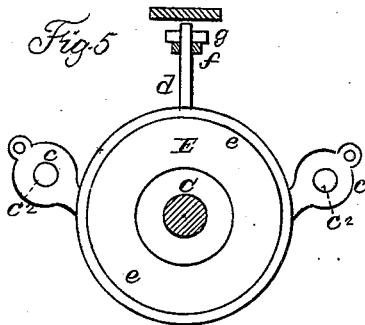


Fig. 6

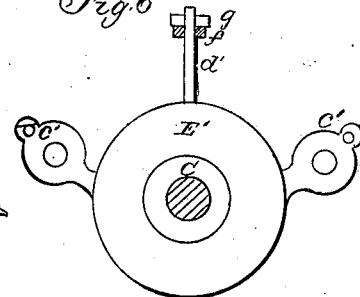


Fig. 7

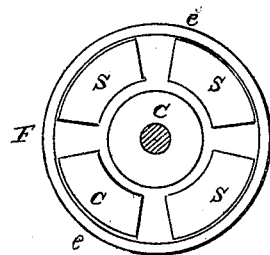
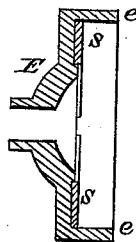


Fig. 8



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# UNITED STATES PATENT OFFICE.

CHARLES H. GUSTIN, OF WORCESTER, MASSACHUSETTS.

## IMPROVEMENT IN CAR-BRAKES.

Specification forming part of Letters Patent No. 48,810, dated July 18, 1865.

*To all whom it may concern:*

Be it known that I, CHARLES H. GUSTIN, of Worcester, in the county of Worcester and State of Massachusetts, but at present residing at Toronto, Canada West, have invented certain new and useful Improvements in Car-Brakes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1, Sheet 1, is a vertical longitudinal section through a railroad-car truck having my invention applied to it. Fig. 2 is a bottom view of my brake. Fig. 3, Sheet 2, is a transverse section taken vertically through the truck and one of its axles. Fig. 4 shows the brake released. Figs. 5 and 6 are inside views of the brake-plates. Figs. 7 and 8 are views of the brake-plates with movable friction-plates.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain novel improvements on railroad-car brakes which operate directly upon the axles of the wheels instead of upon the wheels themselves, and effect the stopping of a train of cars by means of friction-clamps of considerable area being brought together with great force.

The nature of my invention consists in the application of laterally-adjustable friction-clamps upon the axles of truck-wheels in such manner that these clamps are suspended from and sustained by the truck-frame independently of the contrivances which are employed for actuating them, thereby transferring all the strain upon the friction-clamps consequent upon braking up a train directly to the truck-frame, and enabling me to employ comparatively light rods for connecting together and acting upon said clamps, as will be hereinafter described.

My invention also consists in connecting together the friction-clamps of the two axles of a truck-frame by means of longitudinal connecting-rods in such manner that these rods will operate upon all the clamps simultaneously, but perform no part in preventing these clamps from turning with their respective axles when the brakes are applied, as will be hereinafter described.

My invention also consists in providing for

renewing the friction-surfaces of the clamps at pleasure without the necessity for a renewal of the clamps themselves, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A represents a truck-frame, B B the wheels thereof, and C C the axles, all of which parts may be made in the usual manner.

D D are circular plates, which may be constructed with rounded hubs *a a*, as shown in Figs. 3 and 4, Sheet 2, for the purpose of giving the plates firmer bearing and also increasing the area of their friction-surfaces without increasing their diameter. These friction-plates are secured rigidly to their respective axles C C, at the middle of the length thereof, so as to turn with them.

E E' are laterally-adjustable clamping-plates the friction-surfaces of which are made to conform to the surfaces of the friction-plates D D, as shown by Sheet 2. These clamps are formed with hubs *b b'*, and also with wings *c c'* and vertical hangers *d d'*. The clamps E E are constructed with rims *e e*, which project over the circumferential edges of the clamps E' E' and prevent dirt or other substances from getting between the friction-surfaces.

The hangers or vertical plates *d d'* of the friction-clamps are attached at their upper ends to the truck-frame A by means of transverse guides or staples *f f* and short cross-pins *g g*, so that said clamps can be moved laterally up to or from the friction-plates D D by means of levers and connecting rods, as will be hereinafter explained.

The wings *c c* have pins *c<sup>2</sup>* projecting from them and entering the wings *c' c'* loosely, and around these pins or guides springs *d<sup>2</sup>* are coiled for the purpose of spreading apart the clamps or each pair of clamps when they are released, as shown in Fig. 4, Sheet 2.

Eyes are formed on the extremities of the wings *c c'* for the purpose of attaching the suspension-chains *h h* to the clamps. These chains being attached to strong eyes *i i* on the rails of the truck-frame, they will effectually prevent the clamps from turning or being twisted when they are forcibly applied to the friction-

plates D D, whether the train be moving backward or forward.

G G' represent two longitudinal connecting-rods extending from one axle to the other, and receiving in eyes formed on their extremities the cylindrical portions of the hubs *b b'* of the clamps E E'. The rod G has a grooved wheel, *j*, applied loosely upon it at the middle of its length, over which passes a chain, *k*, one end of which is affixed to the middle of the rod G', and the other end to the extremity of the short arm of a horizontal lever, H. This lever is pivoted to a post, A', projecting down from frame A, and is attached to the brake-shaft J by means of a chain, J', as clearly shown in Fig. 2. When the chain J' is wound upon the brake shaft or rod J the lever H will take up the slack of chain *k* and forcibly draw both rods, G G', toward each other simultaneously. This will cause the friction-clamps E E' of both axles to impinge upon the surfaces of the friction-plates D D, thus offering considerable resistance to the turning of the axles and finally, by increasing the pressure of said clamps, stopping the train. When the brake-rod J is released the springs *d*<sup>2</sup> between the two pairs of friction-clamps will again distend or separate them and relieve the friction-plates from friction.

By my invention I suspend each one of the friction-clamps at three points, and make the suspension-chains serve as stays for preventing any strain upon the connecting-rods G G'. By this means I dispense with much complication in the construction and arrangement of the contrivances for working the friction-clamps.

In Figs. 7 and 8 I have represented a mode of renewing the friction-surfaces of the clamps, which consists in forming these clamps with

depressions in their surfaces adapted for receiving their segments *s s*, which may be secured in their recesses by means of screws, or in any other suitable manner. When these segments wear out they can be removed and new ones substituted, thus obviating the necessity of renewing the clamps.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The employment of laterally-adjustable friction-clamps E E', which are suspended from the truck-frame, in combination with intermediate friction-plates, D, which are secured to the axles of the car-wheels, substantially as described.

2. The construction of the friction-clamps with wings on them, substantially as described.

3. Suspending the friction-clamps by means of hangers *d d'*, staple-guides *f f*, and pins *g g*, substantially as described.

4. The removable friction-plates S S, applied to the laterally-adjustable clamps, substantially as described.

5. The connecting-rods G G', applied to the hubs of the friction-clamps, in combination with the loose pulley *j*, chain *k*, and lever H, arranged substantially as described.

6. So applying the laterally-adjustable friction-clamps that the strain which is received by them will be sustained by the truck-frame instead of by the connecting-rods G G', which are used to adjust said clamps, substantially as described.

CHARLES H. GUSTIN.

Witnesses:

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