H. W. NORVILL.

Car Brake.

2 Sheets—Sheet 1.

No. 29,712.

Patented Aug. 21, 1860.

Fig. 1.

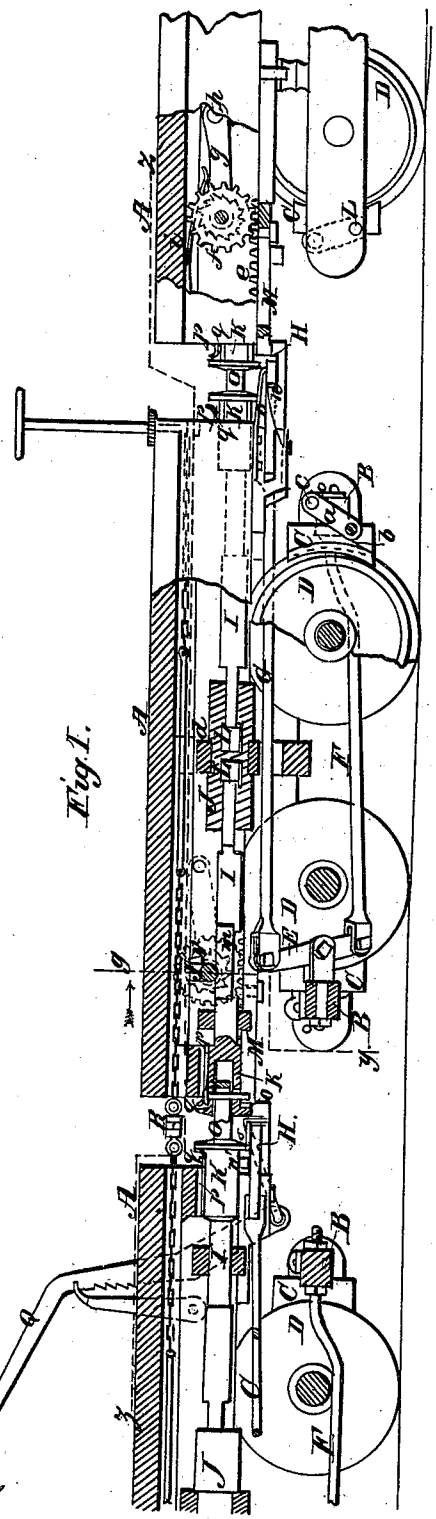
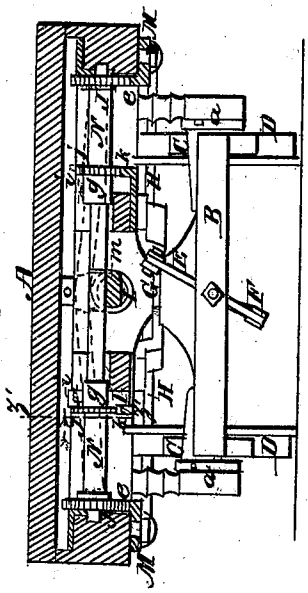


Fig. 2.



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2 Sheets—Sheet 2.

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Fig. 3.

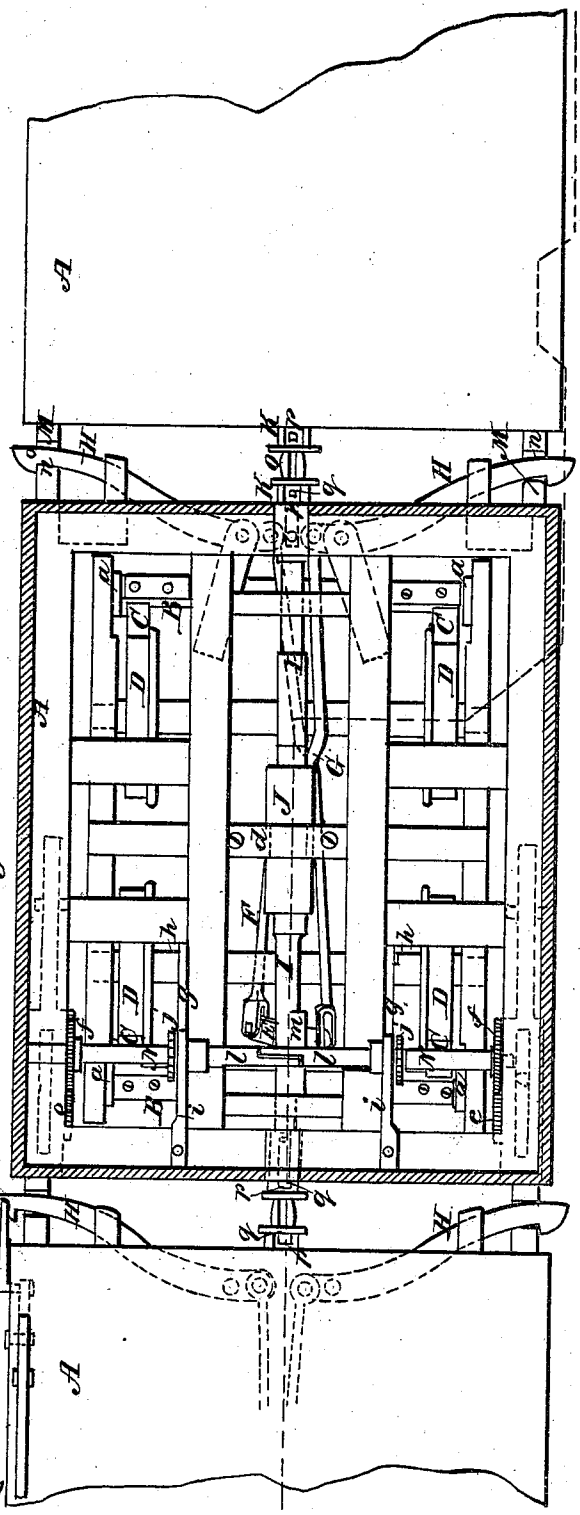


Fig. 6.

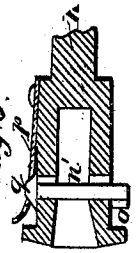


Fig. 5.



Fig. 4.



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UNITED STATES PATENT OFFICE.

H. W. NORVILL, OF LIVINGSTON, ALABAMA.

CAR-BRAKE.

Specification of Letters Patent No. 29,712, dated August 21, 1860.

To all whom it may concern:

Be it known that I, H. W. NORVILL, of Livingston, in the county of Sumter and State of Alabama, have invented a new and Improved Car-Brake; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a side sectional view of my invention taken in the line *x*, *x*, Fig. 1. Fig. 2 is a transverse section of the same, taken in the line *y*, *y*, Fig. 1. Fig. 3 is a horizontal section of the same, taken in the line *z*, *z*, Fig. 1. Fig. 4 is a detached section of a portion of the same, taken in the line *z'*, *z'*, Fig. 2. Fig. 5 is a detached perspective view of the shackle. Fig. 6 is a detached view of the means employed for securing the shackle bolts in the draw heads.

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

This invention relates to an improvement in that class of car brakes in which the power is applied through the momentum of the cars as the speed of the latter is checked by the engineer. The object of the invention is to obtain a simple and efficient arrangement which will place the brakes under the complete control of the engineer, and by which the cars may be suddenly stopped.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A represents car trucks which may be constructed in the usual way and therefore do not require a minute description.

B represents shoe bars which are attached to the trucks by links *a*, the latter being pivoted at their lower ends to the trucks, as shown at *b*, and their upper ends pivoted to the ends of the shoe bars, as shown at *c*, Fig. 1. By this arrangement the shoes C, at the ends of the bars B, will have a tendency by the gravity of the latter to keep in contact with the treads of the wheels D.

To one of the shoe bars B, of each truck a lever E, is attached and one end of this lever is connected by a rod F, to the other shoe bar of the truck, while the opposite end of lever E, is connected by a forked rod G, to the inner ends of two levers H, H, which are attached to the under side of the truck at one end. The outer ends of the levers H, H, curve outward in front of the trucks, as shown clearly in Fig. 3. By pressing inward one or both of the levers H, of each truck it will be seen that the shoes C, will be pressed against the wheels D.

In each truck A, there are placed buffer rods I, I, the inner ends of which are of square or rectangular form and are fitted in opposite ends of a hub J, said hub being placed in a cross piece *d*, of the truck so as to be allowed to rotate but incapable of moving longitudinally, as will be fully understood by referring to Fig. 1. The buffer rods I, I, are also allowed to rotate freely, and at the outer end of each, there is a draw-head K, attached. The inner ends of the buffer rods I, bear against springs L, which are fitted within the hub J, as shown clearly in Fig. 1.

To the under side of each truck A, there are secured two slides or lock bars M, M, which are allowed to work longitudinally in and out from the car trucks, and at the ends opposite to those where the levers H, H, are attached.

Each slide or lock bar M, has a rack *e*, on it, and these racks gear into pinions *f*, *f*, which are placed on shafts N, N, in the truck. The inner ends of the shafts N, N, are fitted in arms *g*, *g*, which are secured at one end in the trucks by pivots *h*, the opposite ends of the arms having springs *i*, bearing on them which springs have a tendency to keep ratchet *j*, at the inner ends of the shafts N, in gear with pawls or stops *k*, attached permanently to the truck frame—see Fig. 4. To each arm *g*, there is attached a rod *l*, said rods projecting over one of the buffer rods I, which has a cam projection *m*, on it—see Figs. 1, 2 and 3.

The outer part of each slide M, at its upper surface has a notch *n*, made in it, and these notches receive the ends of the levers H of the car truck adjoining, as shown in Fig. 3.

O is the shackle or link the ends of which are secured in the draw heads K, by bolts *n'*; these bolts pass through the shackles and draw-heads, and each bolt has a lip *o*, on its lower end, said lip being simply a lateral projection, which, when the bolt is turned so that the projection will not register with the hole through which it passed, will prevent the bolt being withdrawn from the head. To the upper surface of each draw head K, there is attached a spring *p*, the outer parts of which are perforated with

square holes to fit over square heads q, on the upper ends of the bolts n'. The springs p, thus arranged serve to prevent the casual turning of the bolts so that the bits or projections o, cannot pass casually in line or register with the holes in the draw-heads through which they are passed. By this arrangement the buffer rods I, and draw heads may be turned and the shackle bolts retained in proper place in the draw-heads.

The shackles O, are of double taper form; that is to say, they are broadest and thickest at the center and decrease in width and depth from their center towards each end, as shown in Fig. 5.

The operation is as follows: When several cars are connected together, or when one only is connected to the tender of a locomotive the shackle O, is adjusted in the draw-heads and the ends of the levers H, H, fitted in the notches n, of the slide bars M, of the truck of the car, in front of them. As the cars are drawn along the shoes C, will be free from the wheels D, but at any time the engineer checks the speed of the engine, the cars by their momentum will press forward, and in consequence will press the ends of lever H, against the slides M, which are held in place by the ratchets j, the latter being kept engaged with the pawls or stops k, by the springs i, see Fig. 4. The pressing inward therefore of the outer ends of levers H, causes the brakes to be applied, the shoes C, being pressed against the wheels D, and as the levers H, are thus actuated by the momentum of the cars the draw-heads K, approach each other and the central parts of the shackle O, owing to its increased breadth will fill the heads K, K, and admit of the buffer rods I, being turned in their bearings. This double taper form of the shackles O, is important for when the cars are drawn along the small ends admit of a full play of the shackle, so as to allow the cars to conform freely to the curvatures of the road, and when the cars are brought comparatively close together by their momentum when the speed is checked, the shackle forms quite a positive connection, and admits of the buffer rods of all the cars being simultaneously turned by the turning of any one of them. This turning of the buffer rods is necessary in order to relieve the wheels of the brakes, the result being obtained by the cam-projections m, which as the rods I, are turned throw up the inner ends of the rods l, and consequently raise the ratchets j, free from the pawls or stops k, and thereby liberate the slides M, which are thrust forward under the action of lever H.

It will be seen therefore from the above description that it is essential that the shackle bolts n', be secured in the draw heads, as they might otherwise drop out when the buffer rods are turned.

I would remark that in certain cases where it might be necessary to operate the brakes manually as for instance when one car is switched off on a side or branch track, provision is made for that purpose by connecting a lever Q, with one of the levers H, as shown clearly in Fig. 1. I would also remark that in case it should ever be required to stop the cars suddenly at a slow speed when the latter might not be sufficient to effect the result sufficiently quick a chain R, may be attached to the hindmost car and to a windlass or shaft on the front car, so that by winding up the chain the levers H, may be actuated.

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

The employment of the levers H, shoe bars B, lock bars M, and buffer rods I, arranged to operate substantially as and for the purpose herein set forth.

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M. M. LIVINGSTON.