(No Model.)

W. B. TURNER.

CAR BRAKE.

No. 386,793. Patented July 24, 1888.

Fig. 1.

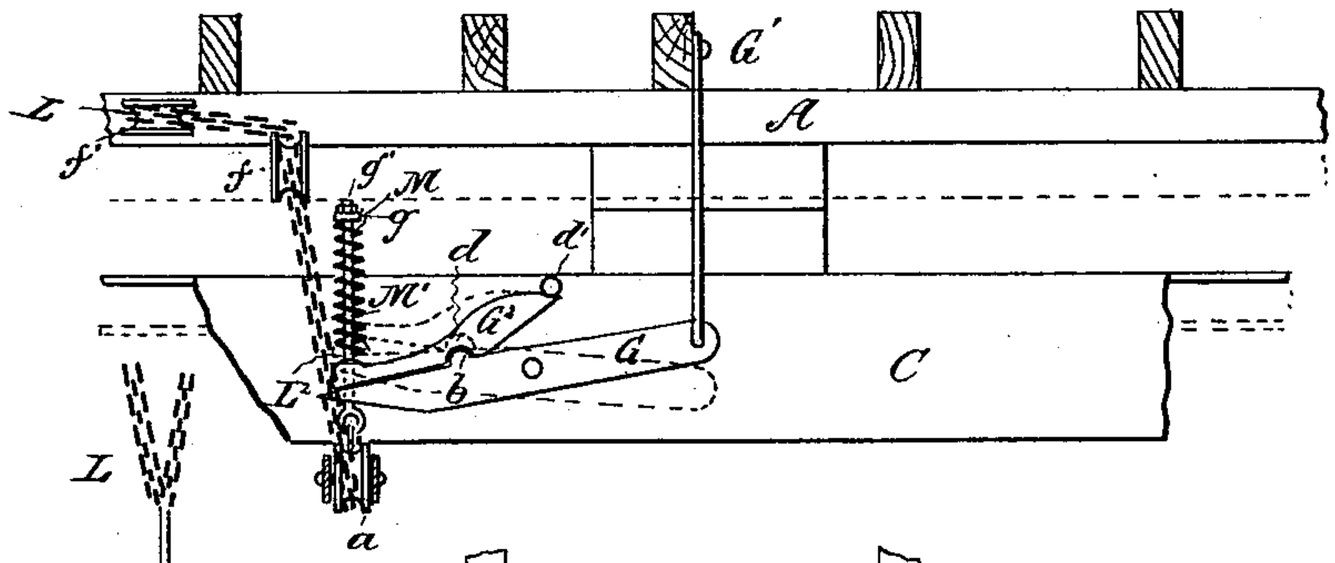


Fig. 2.

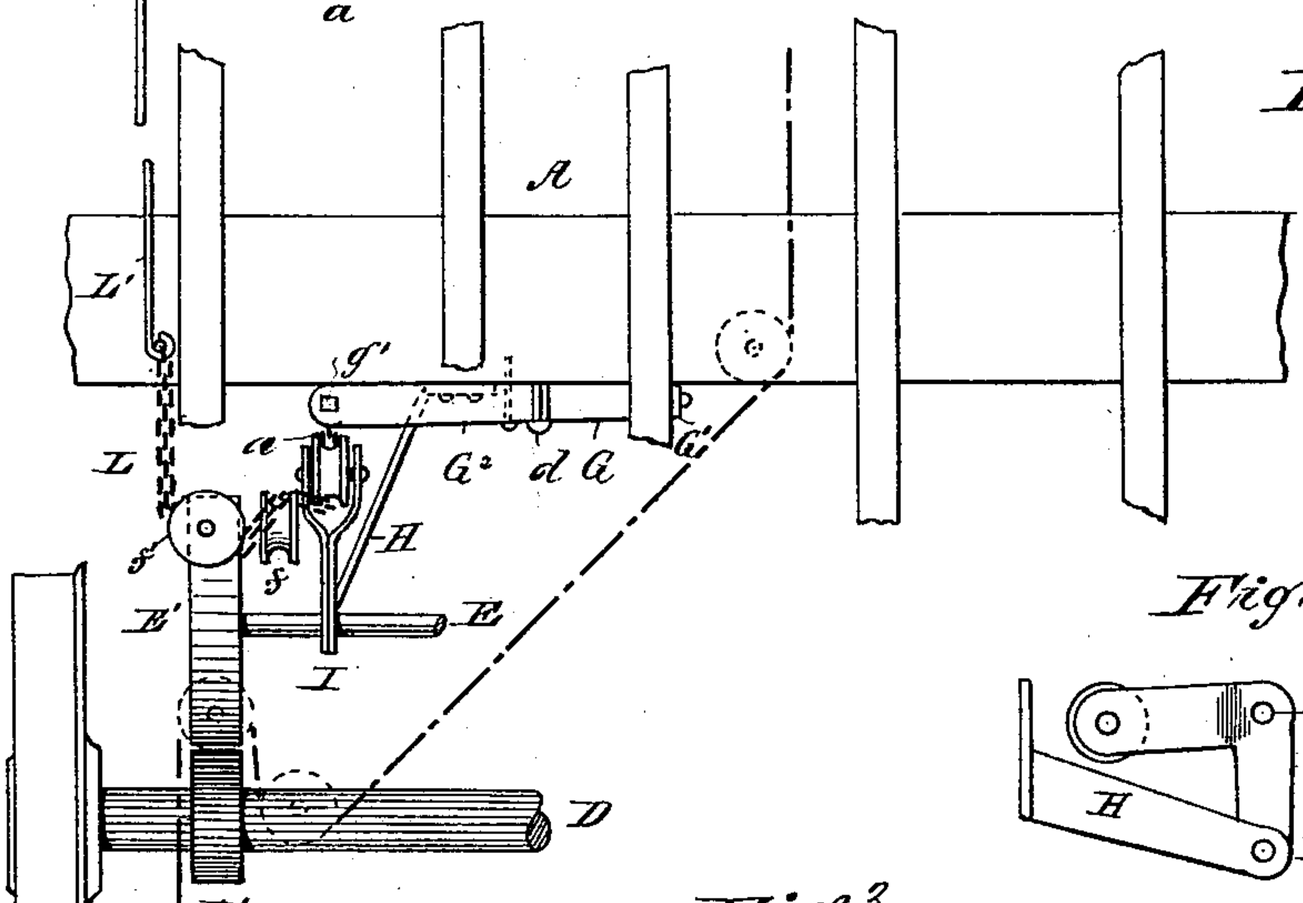
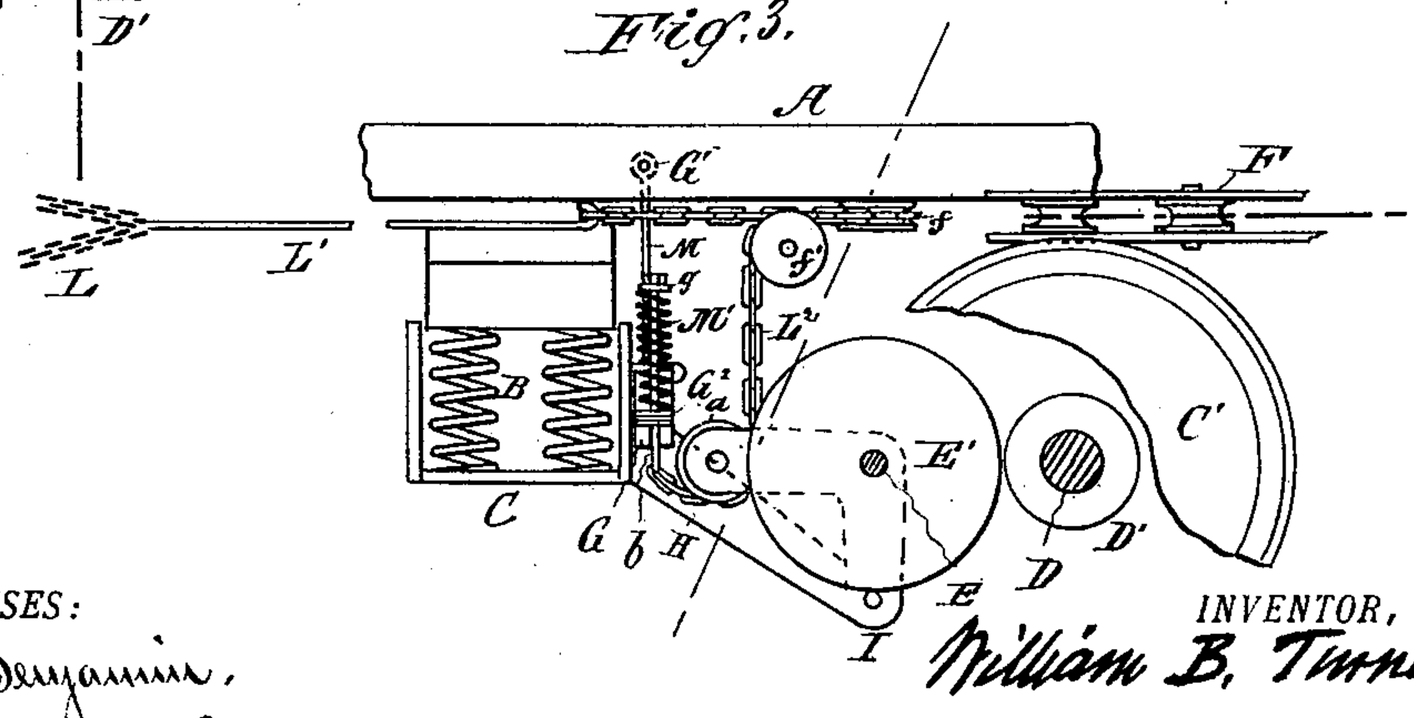


Fig. 4.

Fig. 3.



WITNESSES:

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WILLIAM B. TURNER, OF NEW YORK, N. Y., ASSIGNOR TO THE TURNER-BEARD AUTOMATIC BRAKE COMPANY.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 386,793, dated July 24, 1888.

Application filed September 21, 1887. Serial No. 250,295. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. TURNER, of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Car-Brakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to an improved device for automatically increasing the amount of brake-pressure in proportion to the increase in the weight of the car-load.

This improved device is especially applicable to momentum car-brakes, wherein the inward motion of the draw-bar is requisite for bringing the brake mechanism into operation, and is herein shown and described as applied to a style of momentum-brake already patented by me July 26, 1887, and for improvements on which I have an application for a patent now pending in the United States Patent Office, Serial No. 243,202. The brake-pressure required to stop a car within a given distance must be increased with the increase of the weight of the car-load. The carrying-springs of a car are vertically compressed to a greater or less extent, according to the weight of the load; and it is this downward vertical movement of the car-body proportioned to the variation in the weight of the load which I propose to make use of to increase the brake-pressure through suitable auxiliary mechanism which is attached to the truck below the carrying-springs of the car.

Reference is to be had to the accompanying drawings, forming part of the specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation showing my improved device in position on a car. Fig. 2 is a plan of the same, showing its connection with other parts of a brake mechanism. Fig. 3 is a side elevation with parts broken away to exhibit other parts. Fig. 4 exhibits some details of the brake mechanism.

In the drawings, A represents a car-body, B the carrying-springs, C part of a car-truck, and C′ a car-wheel, all of which are of well-known construction and in common use. The car-axle shown at D has secured on it a collar, D′, and a suitably-journaled shaft, E, carries a friction-wheel, E′, that is designed to be brought in contact with the collar D′ when the brake is to be applied. An elbow-lever, I, is pivoted in the forked end of a hanger, H, that is secured to a timber of the car-truck, and in one end of this elbow-lever I is journaled one end of the friction-wheel shaft E, while in the other and forked end of said elbow-lever is a sheave, *a*. All these parts, with the exception of the forked end of the elbow-lever and the sheave *a*, are shown and described in my application above referred to, now pending in the Patent Office, and hence require no further special description herein. In said referred-to application is shown a rod depending from the elbow-lever, surrounded by a pressure-regulating spiral spring, and having a washer and adjusting-nut on its lower end. In the present case this rod, spring, nut, and washer device for regulating the brake-pressure is used, though in a different position, in combination with certain other mechanisms, as hereinafter described.

On a part of the car truck that is rigid or has no downward motion is pivoted at its center a lever, G, to one end of which is secured the lower end of a rod, G′, extending vertically upward and rigidly secured at its upper end to the car-frame. On the upper face of this lever G, between its center and free slotted end, is formed a boss, *b*, which serves as a fulcrum for a rocking block, G^2, set thereon. In the inferior face of this rocking block G^2 is a socket, *d*, that fits over the lever-boss *b*, and from this point the face of said block slopes upward in opposite directions, as best shown in Fig. 1, that it may be capable of rocking lengthwise. One extreme of this rocking block G^2 is in its normal position in contact with a stop, *d′*, fixed in the truck-frame, while the other and perforated end normally lies flat on the free end of the lever G, as shown in full lines, Fig. 1.

The eyebolt or rod M, instead of depending below the lever I, as in my pending application above referred to, is passed up through the slot *o* in the end of the lever G, and the corresponding hole in the end of the rocking block G^2, and above the latter, is surrounded with a spiral spring, M′, whose lower end rests on the nose of the rocking block, and whose upper end is in contact with a washer, *g*, held in place by a nut, *g′*, on the extreme upper end of said bolt or rod, this nut and washer serv-

ing, when adjusted, for regulating the tension of the spring M′, which latter regulates or determines the normal pressure or power of the brake when applied, but is in no sense a brake-actuating spring. In the eye of this bolt or rod M is secured an end of the chain L^2, which, passing around the sheave *a* of the elbow-lever I, is carried up over the sheave *f* of the movable pulley-block F^3, and then around the guide pulley or sheave *f′*, and is secured to a rod, L′, that, together with the attached chain L, forms the intermediate link between the draw-bar connections proper and the brake-applying connections proper, as fully set forth in the pending case above referred to, the upward pull on the chain L^2 causing it to throw the elbow of the lever I forward, and thereby force the friction-pulley with more or less force, proportionately to the tension of the spring M′, against the axle collar.

Whether the car be empty or loaded, the brake is put into operative position by the inward movement of the draw-bars, as set forth in the case above referred to, and in the absence of this improved device with the same pressure or force in either case; but with this improved device attached the weight of the car-load is made to increase the brake-pressure as follows: Normally the brake is adjusted to suit the light weight of the car. Now, as the car is loaded the added weight of the load causes a closing of the car-body toward the truck by compressing the carrying-springs, and as the rod G′ is secured to the car-body it partakes of this closing or downward motion of the car-body and transmits it to that end of the lever G to which it is attached, and as said lever G is pivoted at its center it is evident that the free end of said lever will rise as much as the other end is pushed down by the rod G′, and as the rocking block G^2 is located on the free end of the lever G it will be forced upward thereby; but as one end of said block G^2 is prevented from rising by the stud or stop *d′* the motion thus transmitted to it of the rod G′ and lever G will cause the other end to rise from its normal position in contact with lever G, as shown in dotted lines, Fig. 1, and thereby compress or shorten the spring M′, thus increasing its strength. (It will be seen that the action of lever G and block G^2 is similar to that of a pair of scissors.) Now, as the chain L^2 passes around the sheave *a* and is connected with lever G and spring M′ by means of eyebolt M, it will be seen that said lever G will operate to take up what slack in said chain is let out or down by the downward movement of the car-body. Thus the action of the draw-bars on the brake mechanism is not at all changed; but, the spring M′ being the fulcrum against which the chain L^2 pulls, it will be seen that by increasing the strength or resistance of said fulcrum, as above explained, the force with which the friction-wheel is applied to the friction-collar will be increased, as also the power of the brake. Thus it will be seen that this device increases the braking pressure in proportion to the weight of the load in the car.

I am aware of United States Patent No. 245,789, wherein is shown a device for automatically increasing or decreasing the amount of brake-pressure through a brake-actuating spring, and I do not claim such device; but,

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

1. In a car-brake wherein the inward motion of the draw-bar is requisite for bringing the brake mechanism into operation, the combination, with brake-applying mechanism, substantially as herein shown and described, embracing a spring whose normal tension may be adjusted by hand for regulating or determining the power or pressure of the brake, of auxiliary mechanism consisting of lever G, pivoted on the car-truck, rod G′, secured to the car-frame, and rocking block G^2, connecting with rod M, substantially as shown and described, connecting the car-body with said regulating-spring, for the purpose of automatically increasing the tension of the latter, and consequently increasing the brake-pressure in proportion to the increase in weight of the car-load, as set forth.

2. In an automatic car-brake, substantially as set forth, wherein an adjustable pressure-regulating spring is made operative to tighten or slacken the intermediate link between the draw-bar connections proper and the brake-applying mechanism proper, the combination, with said spring and intermediate link, of a device connected therewith and with the car-body, substantially as described, whereby said spring may be compressed and said intermediate link be tightened in proportion to the increase in the car-load by the consequent depression of the car-body, as set forth.

3. The combination, with the elbow-lever I, carrying the friction-wheel shaft, and the intermediate link, L L′ L^2, connecting said lever with the draw-bar connections proper, as set forth, and the pressure-regulating spring, rod, washer, and nut, M M′ *g g′*, of rocking block G^2 and lever G, arranged on the car-truck, and the rod G′, connecting the said lever G with the car-body, all arranged and operating substantially as and for the purpose set forth.

4. In a momentum car-brake, the combination, with the spring adapted and arranged to be operated or adjusted for regulating the normal pressure of the brake, of a suitable device connecting the said spring and the car-body, substantially as herein shown and described, whereby the former is compressed by the depression of the latter in consequence of and in proportion to the weight of its lading, as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, in the presence of two witnesses, this 27th day of August, 1887.

WM. B. TURNER.

Witnesses:
MILAN F. STEVENS,
R. M. BAILEY, Jr.