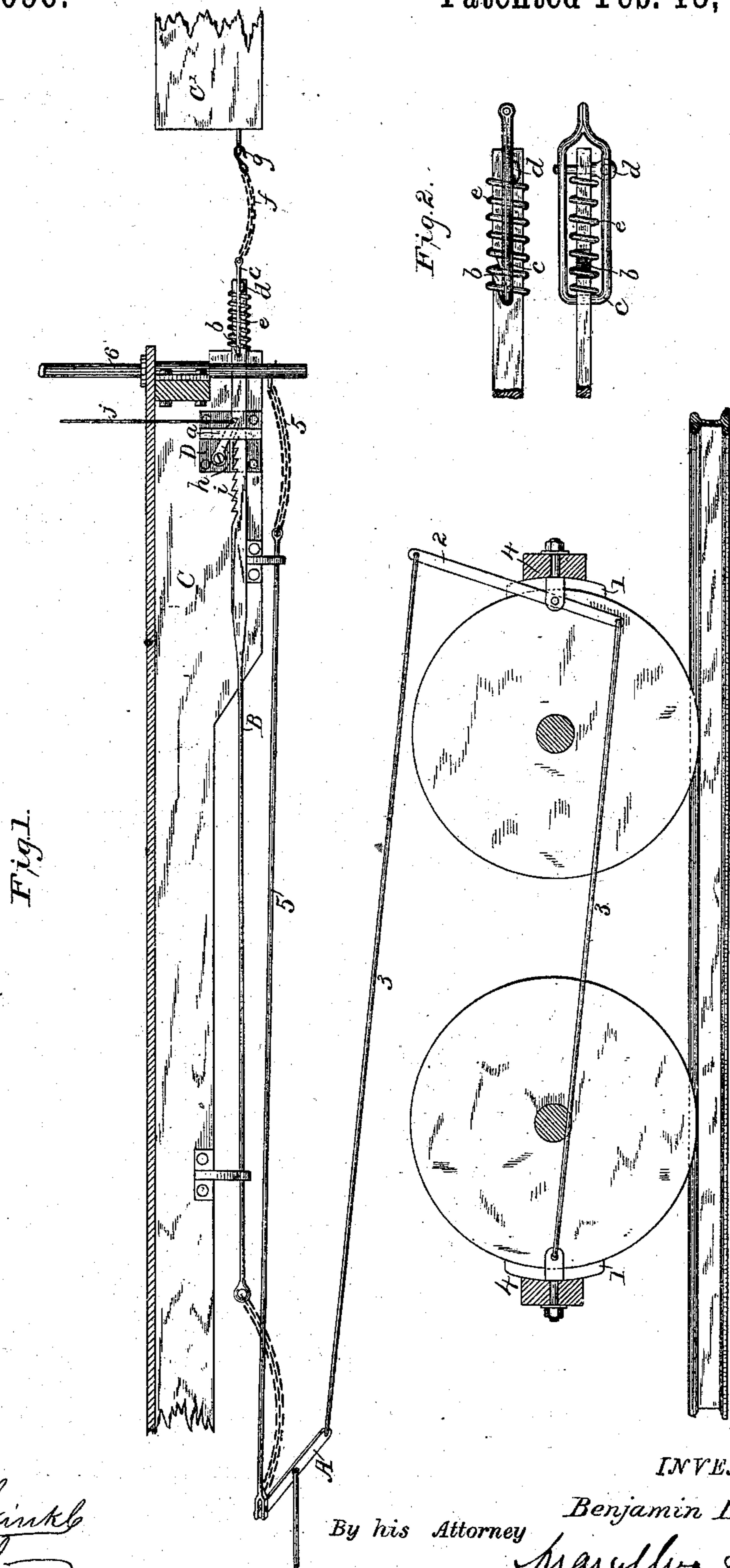


(No Model.)

B. L. STOWE.
CAR BRAKE.

No. 272,096.

Patented Feb. 13, 1883.



WITNESSES

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UNITED STATES PATENT OFFICE.

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CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 272,096, dated February 13, 1883.

Application filed November 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN L. STOWE, of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Railroad Car-Brakes, of which the following is a specification.

My invention has for its object the automatic application of the brakes of a car when the train of which the car forms part is broken apart accidentally. To effect this result I make use of draft mechanism connected on one hand to the floating lever or other suitable portion of the brake system of the car, and on the other hand to some part of the next adjoining car, so that should the cars become uncoupled accidentally while in motion the draft mechanism will be pulled in a direction to apply the brakes of the car to whose brake-system it is connected. This feature, broadly considered, is not new with me. It is requisite, however, to provide some means for insuring that the brakes shall under all conditions be applied with requisite force without respect to the length of pull, for it frequently may happen that, owing to a wearing and stretching of the parts, a length of pull that would suffice when the brake-shoes and brake mechanism are new might not apply the brakes with sufficient force to be of any practical use when the shoes and other parts become worn; and it is further requisite to provide means by which the draft mechanism, whatever may be the varying length of pull, shall be held in the position to which it is brought when the brakes are applied with the requisite and predetermined power. These conditions, I have found, are realized by combining with the draft mechanism a separable coupling for connecting it to the adjoining car, the strength of which is so graduated or proportioned to the pull exerted on the draft mechanism that the strain thereon in excess of that required to pull the said mechanism far enough to apply the brakes with the needed power shall dissolve the connection between the adjoining car and the draft mechanism; and, further, by combining with the foregoing parts an automatic locking or retaining mechanism which will act to main-

tain and hold the draft mechanism in its brake-applying position whatever may have been the length of pull required to bring said mechanism to that position.

The nature of my invention and the manner in which the same is or may be carried into effect will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is a diagrammatic sectional side elevation, representing so much of a truck and one end of a car as needed for the purpose of explaining my invention. Fig. 2 represents in plan and side elevation, on enlarged scale, the outer end of the draft-rod and the separable coupling device combined therewith.

In the drawings, A is the floating-lever of a hand-brake-applying mechanism of ordinary type, which is connected to the brake-shoes 1 through the intermediary of brake-levers 2, brake-rods 3, and brake-beams 4, in the customary way, and is also connected, as usual, to the hand-brake shaft 6 by brake-shaft connecting rod and chain 5. The construction and arrangement of these parts are well-known, and they are represented to a certain extent diagrammatically only.

The draft mechanism hereinbefore referred to consists in the present instance of a rod, B, joined at one end by a chain to the floating-lever A, as indicated, and extending about to the end sill of the car, whose frame is indicated at C. This rod passes through a slot or guide-opening, a, in a bracket or casting, D, fastened to the exterior of one of the draw-beams near the end sill, and the portion of the rod that is designed to play through this opening is made flat, as shown. The draft-rod B is connected to that end of the lever A to which the brake-shaft connecting-rod 5 is attached, and it will be seen that an outward pull on said draft-rod will cause the brakes to be applied just as though the rod 5 were caused to act through the intermediary of the brake-shaft 6. To cause the draft-rod to operate in this way automatically under proper conditions, it is connected to the adjoining car, (indicated at C',) so that in case the two cars pull apart by reason of the accidental breaking of their coupling, or

from other causes, the car C' will pull upon the draft-rod B, which latter will thus be caused to apply the brakes on car C. The connection between the draft-rod B and the adjoining car C' can be established in a great variety of ways. It can be hooked or coupled to a like rod on car C', or it can be fastened to the platform-post or any other convenient point upon said car. I have here represented it as simply fastened to the platform of the car C'. It is further requisite that the connection should be so arranged that it will be dissolved after the draft-rod has been pulled far enough to apply the brakes to the requisite extent. This also can be accomplished in a variety of ways—as, for instance, it may be made just light enough to break after the brakes are sufficiently applied, for which purpose the connecting chain or hook can be made of a strength so proportioned to the strain that either one or the other will break when subjected to about the amount of pull requisite to brake the car. I prefer, however, to so form the connecting device that the connection can be dissolved without breaking the parts of which the device is composed. One convenient arrangement for the purpose is shown in the drawings.

In the draft-rod, ahead of the point where it passes through the bracket D, is formed an inclined slot, *b*, which extends from about the longitudinal center of the rod forward and upward to the upper edge of the same. In this slot is placed a link, *c*, between the rear portion of which and a cross-pin, *d*, in the outer end of the rod is confined a spiral spring, *e*, which, by its pressure, acts to hold the rear portion of the link against the rear end of the slot *b*. The link is wide enough and long enough to straddle the spring and to extend out beyond the end of the draft-rod. To its outer end is fastened a chain, *f*, provided with a hook, *g*, which hooks on the platform of the adjoining car C', the length of chain being such that so long as the cars are coupled the draft-rod remains unaffected and at rest. Under these conditions, if the two cars C C' of the moving train be accidentally uncoupled and separated, the result will be to apply the brakes on car C through the pull exerted on the draft-rod by car C'. The spring *e* is made of a tension sufficient only to resist the pull required to apply the brakes with the desired power. If, after this point is reached, the cars still continue to separate, the spring will yield to the compressing strain and the link will consequently be drawn out from the slot *b* and will be carried away by car C'. In this way the connection between the two cars is dissolved without breaking any part of the connecting device.

It will here be noted that the separation of the coupling is not dependent in any sense upon the length of pull, or, in other words, the extent to which the draft-rod is pulled out. The coupling, no matter how far it pulls out

the draft-rod, remains intact until the strain upon it is sufficient to apply the brakes with the predetermined power, and only after that point is reached does it separate. The separation of the coupling is therefore dependent, not upon the length of pull, but upon the strain or power required to apply the brakes with the needed force.

When it is desired to again couple up the train the link can be restored to its required position in the slot *b* by removing the pin *d* and sliding forward the spring far enough to permit the link to be inserted in the slot, after which the spring is pushed back into position and the pin *d* again inserted in its place.

It is further necessary that some means be provided whereby the draft-rod, after the cars separate, shall be locked or retained in whatever position it may occupy when applying the brakes with the needed force. A convenient arrangement for this purpose is represented in the drawings, consisting of a pawl or detent, *h*, (either gravity or spring controlled,) pivoted to the casting or bracket D above the slot *a*, and arranged so that its acting end will drop into and engage notches or ratchet-teeth *i*, formed in the upper edge of the draft-rod. The pawl rides over the teeth as the rod is pulled out; but it engages them so as to prevent rearward movement of the rod. In this way the draft-rod is automatically locked or retained in the position requisite to maintain the brakes applied. In order to permit the brakes to be released whenever desired, I provide a small rod, *j*, which is pivoted or jointed to the outer end of the pawl, and reaches up through the platform of the car C to a point where it can be conveniently reached by the brakeman. By pulling up the rod *j* the pawl can be lifted sufficiently to disengage it from the teeth or notches on the draft-rod, and the latter will then be free to recede far enough to release the brakes.

I claim—

1. The combination, with the brake-applying mechanism and the draft-rod, of a separable coupling for connecting the same to the adjoining car, the strength of which is graduated or proportioned to the pull exerted upon the draft-rod, substantially as specified, so that only strain or pull in excess of that required to pull the draft-rod into the position where it applies the brakes with prescribed force shall dissolve the connection between said adjoining car and the draft-rod, and automatic locking mechanism whereby said draft-rod is locked in any brake-applying position to which it may be brought, the combination being and acting as hereinbefore set forth.

2. The combination, with the brake-applying mechanism and the draft-rod connected thereto and to the adjoining car, substantially as described, of an automatic locking pawl or detent engaging notches or teeth on said draft-rod, and a pawl, lifting-rod, or stem adapted

to be operated by hand for the purpose of dis-
engaging the pawl from the draft-rod, sub-
stantially as hereinbefore set forth.

3. The combination, with the draft-rod,
5 formed with an inclined slot, open at its outer
end, as described, of the coupling-link, the
cross-pin, and the spring surrounding the rod
and confined between said cross-pin and link,

substantially as and for the purposes hereinbe-
fore set forth.

In testimony whereof I have hereunto set
my hand this 24th day of October, 1882.

BENJAMIN L. STOWE.

Witnesses:

FREDERICK A. STOWE,
NATHAN STOWE.