

(No Model.)

2 Sheets—Sheet 1.

H. HINCKLEY.
BRAKE FOR RAILWAY CARS.

No. 527,749.

Patented Oct. 16, 1894.

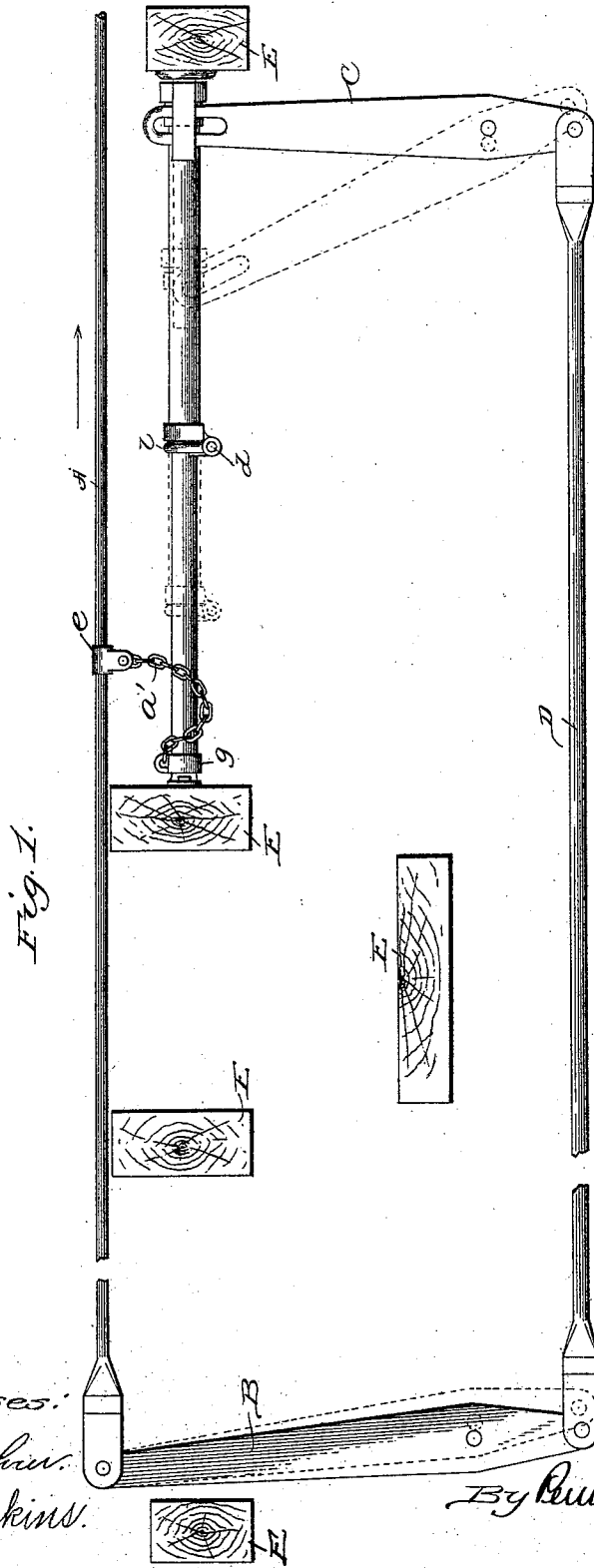


Fig. 1.

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UNITED STATES PATENT OFFICE.

HOWARD HINCKLEY, OF TRENTON, NEW JERSEY, ASSIGNOR TO THE
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BRAKE FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 527,749, dated October 16, 1894.

Application filed May 29, 1894. Serial No. 512,873. (No model.)

To all whom it may concern:

Be it known that I, HOWARD HINCKLEY, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Slack-Adjusters for Railway-Car Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates generally to the system of automatic slack adjusters for railway car brakes secured to me by several Letters Patent already granted. Specifically it relates to the type of adjuster embraced in Letters Patent No. 496,606, granted to me May 2, 1893, and has for its object to provide an improved construction and arrangement of parts for carrying out the invention broadly covered by said patent. The construction in which the invention was embodied in that patent, and which was also specifically claimed therein, consisted generally in a tubular guide rod or support fixed at one end to some part of the truck, an encircling sleeve adjustable on said support and carrying a keeper constituting the dead-lever fulcrum, a spring for moving the fulcrum sleeve in one direction along the supporting rod, an automatic grip between the fulcrum-carrying sleeve and the spring, and a connection between the grip and spring and the brake rod for compressing the spring and throwing it into action, the spring and grip being arranged within the barrel of the guiding and supporting rod. In the present arrangement, I employ the same general combination, but, instead of arranging the sleeve operating rod and the automatic grip within the barrel of a tubular guide and supporting rod, I use a solid supporting rod extending from one beam of the truck to another, thereby giving it a firm support at each end, and arrange the sleeve operating rod to work exteriorly thereof. I also employ a gripping device which acts exteriorly upon the sleeve operating rod, and this operating rod works within the fulcrum carrying sleeve, but, instead of being inclosed within the sleeve and working outwardly as the slack increases, it

works from the outer end of the sleeve inwardly.

The invention also includes a novel form of automatic grip, and other specific details of improvement, all as will hereinafter appear.

In the accompanying drawings, Figure 1 is a side elevation of the apparatus shown in connection with an ordinary arrangement of brake levers; Fig. 2, a central longitudinal section of the adjuster proper; and Fig. 3 is a detail view of the sleeve carrying the keeper or fulcrum for the dead lever.

Referring to the views, A is the brake rod; B, that lever of the brake system known as the live-lever; C, what is called the dead-lever, and D the connecting rod, or pitman connecting the lower ends of the two brake levers together. E, E are sills or beams of the truck. The construction and arrangement of these parts are quite independent of the present invention, which is applicable to any style of truck and any arrangement of brake rigging.

F is the supporting rod of the adjuster. It extends from one sill of the truck to another, as shown in the drawings and is firmly bolted at each end. It is preferably reduced in diameter for a portion of its length to receive a coiled spiral spring S.

G is a tube or sleeve encircling the supporting rod and carrying the stirrup or keeper H which constitutes the fulcrum for the dead-lever. This sleeve is free to slide upon the supporting rod in one direction, viz., to the right in Fig. 2 and to the left in Fig. 1, but is held against movement in the opposite direction by means of a releasable catch or locking device I. This locking device may be of any desired construction, but I prefer the form shown in the accompanying drawings, wherein I is a loop or shackle pivoted at *a* to the casting in which is formed the keeper H constituting the fulcrum of the dead-lever. The shackle encircles the larger diameter of the supporting rod and is made to fit the rod snugly so that any effort to push the sleeve toward the left in Fig. 2 would cause the shackle to grip the surface of the rod and lock for the time being the sleeve and the lever fulcrum securely to the rod. The casting to which the shackle is pivoted is pro-

vided with a lug or ear *b* against which the loop abuts when the sleeve is moved in the opposite direction, and which prevents the loop turning past a line perpendicular to the surface of the rod and gripping the rod, the result of which is that, while the sleeve is permitted to move freely in one direction, it will be caught and held against reverse movement by the shackle.

J indicates a tubular operating rod encircling the supporting rod at its smaller diameter, and normally thrust outward upon the supporting rod by means of the spiral spring S which is inclosed between the tube and rod and re-acts between a collar *c* on the rod and the end of the tube. This operating rod slides freely within the sleeve G when moved on the supporting rod S in one direction (to the left in Fig. 2) but when moved in the opposite direction is gripped to the sleeve by a device similar in action, and preferably also similar in construction, to that located at the opposite end of the sleeve for the purpose of preventing retrograde movement of the same on the supporting rod. As shown in the drawings this grip is composed of a loop or shackle *l* pivoted at *d* to a casting forming a sort of cap for the front end of the sleeve G. The loop swings freely in one direction so as to grip the sleeve operating rod, and abuts against the end of the cap when the rod is moved in the other direction and permits it to pass freely without gripping. The two gripping devices are practically the same, about the only difference being that the one at the fulcrum end of the sleeve prevents the sleeve from moving back on the supporting rod, while the other permits the tubular operating rod J to move freely back on the supporting rod F into the sleeve G, but prevents it from moving forward again on the supporting rod independently of the sleeve. It will thus be seen that the sleeve G can only move forward or outward on the supporting rod F, and that the tubular operating rod J moves freely on the supporting rod in both directions, but that when moved outward along the rod it grips and carries the sleeve with it.

The sleeve or tubular rod J is connected by means of a chain or other flexible connection *f* to the brake rod A, or other moving part of the brake mechanism, by means of a clip *e*. The chain is preferably connected to the end cap *g* of the tubular rod J, and the clip *e* is preferably made adjustable on the brake rod.

The construction being as thus described the operation is very similar to that of my above mentioned patent. The upper end of the dead-lever rests in the keeper H which constitutes a fulcrum therefor the same as in the other construction, the pressure incident to applying the brakes being backward on the same. There should be sufficient slack in the chain *f* to permit the brake rod to move far enough to set the brakes when the shoes are

new or unworn and when there is no slack in the connections. As the slack increases the movement of the brake rod tightens the chain and causes the tube J to be pulled backward into the end of the sleeve G against the stress of the coiled spring S inclosed between the tube and the supporting rod, the amount of movement of the tube J depending upon the amount of slack which has occurred. When the brakes are released the chain *f* is, of course, slackened, and the spring S re-acting between the collar on the supporting rod and the end of the tube forces the latter outward. At this time the shackle *l* binds upon the surface of the tube J and grips the latter to the sleeve G, and, as the entire brake rigging is at this time slackened off, the tube J is forced outward by the spring and carries the sleeve G and lever fulcrum H with it. Upon the next application of the brakes, if there is no increased slack, the tube J will, of course, not be moved farther into the sleeve G. If, however, any slack has occurred, and whenever it occurs, the tightening of the chain *f* pulls the tube J farther into the end of the sleeve G, and when the brakes are released the spring carries the sleeve G just so much farther forward. The tube J constitutes the operating rod for the sleeve carrying the fulcrum of the dead lever. As will be seen, this operating rod moves freely to and fro on the supporting rod under the action of the spring and brake rod connection respectively. The fulcrum carrying sleeve, however, is movable on the supporting rod in a forward direction only. It will be understood that continued applications of the brakes result in adjusting the position of the lever fulcrum outward along the supporting rod until the sleeve G incloses more or less of the tube J, and this movement may even continue until the tube is entirely inclosed within the sleeve. In order to reset the parts it is necessary to restore the sleeve G to its original position with the fulcrum for the lever at the sill end of the supporting rod. To permit this the gripping devices are made releasable by simply straightening out the loops or shackles.

I do not wish to be understood as limiting the invention to the specific arrangement of parts herein shown, or to the particular construction of the gripping devices. Any desired form of automatic grip may be employed, but I have found in practice that the shackle shown in the drawings is reliable and efficient in action. If preferred the exterior surfaces of the supporting rod and the tubular sleeve operating rod J may be serrated or roughened so as to increase the hold of the shackle. It is not, however, essential under the ordinary working conditions.

Having thus described the invention, what I claim, and desire to secure, is—

1. The combination of a fixed guide-rod or support, a sleeve encircling said rod and freely movable thereon in one direction, a stop or lever fulcrum carried by the sleeve,

a releasable lock to hold the sleeve against movement in the opposite direction, an endwise movable operating rod, and an automatic gripping device between the rod and sleeve, said device being constructed and arranged to permit the rod to move independently of the sleeve in one direction, and cause it to carry the sleeve with it when it moves in the opposite direction; substantially as described.

2. The combination of a fixed guide-rod or support, a sleeve encircling said rod and freely movable thereon in one direction, a stop or lever fulcrum carried by the sleeve, a releasable lock to hold the sleeve against movement in the opposite direction, a tubular operating rod also encircling the guide rod and movable endwise relatively to the sleeve in one direction, and a gripping device between the operating-rod and sleeve which permits the operating rod to move in one direction on the supporting rod without moving the sleeve, but causes it to move the sleeve on the supporting rod when it moves in the opposite direction; substantially as described.

3. The combination of a fixed guide-rod or support, a sleeve encircling said rod and freely movable thereon in one direction, a stop or lever fulcrum carried by the sleeve, a releasable lock to hold the sleeve against movement in the opposite direction, a tubular operating rod arranged interiorly of the sleeve and exteriorly of the supporting rod, a gripping device between said operating rod and sleeve which permits the rod to move in one direction only relatively to the sleeve, and a spring for moving the operating rod in the opposite direction and carrying the sleeve with it; substantially as described.

4. The combination of a fixed guide rod or support, a sleeve encircling said rod and freely movable thereon in one direction, a

stop or lever fulcrum carried by the sleeve, a releasable lock to hold the sleeve against movement in the opposite direction, a tubular operating rod arranged interiorly of the sleeve and exteriorly of the supporting rod, a connection between said operating rod and a moving part of the brake mechanism, a gripping device between said operating rod and sleeve which permits the rod to move relatively to the sleeve in one direction under the action of its connection with the moving brake mechanism, and a spring inclosed within the operating rod and re-acting between the same and the fixed supporting rod for moving the operating rod and sleeve together in the opposite direction; substantially as described.

5. The combination of the fixed guide-rod or support, the fulcrum carrying sleeve encircling said rod, and the loop or shackle pivoted to the sleeve and encircling the rod with a capacity for swinging in one direction only to grip the surface of the same and prevent the sleeve from moving on the rod; substantially as described.

6. The combination of the fixed guide-rod F, the sleeve G inclosing the same, the dead-lever fulcrum carried by the sleeve, the releasable shackle *l* pivoted on the sleeve and encircling the rod, the tubular sleeve operating rod J, the spring S re-acting between the fixed supporting rod and the tube, the automatic gripping device between the sleeve G and the tube J, and the flexible connection *f* between the tube J and the brake rod; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HOWARD HINCKLEY.

Witnesses:

F. B. STEVENS, Jr.,
F. C. LOWTHORP.