

(No Model.)

2 Sheets—Sheet 1.

B. WOLHAUPTER.
BRAKE MECHANISM.

No. 590,446.

Patented Sept. 21, 1897.

Fig. 1.

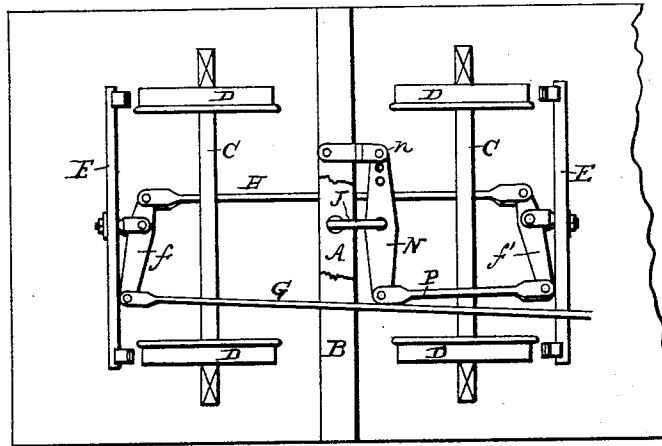


Fig. 2.

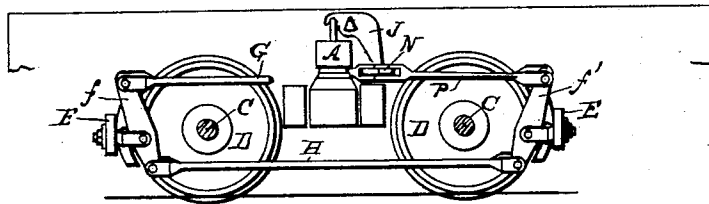


Fig. 3.

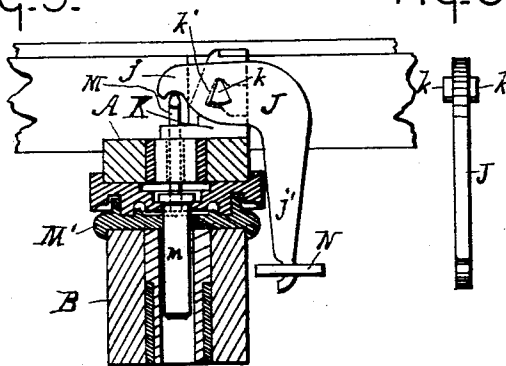


Fig. 5.

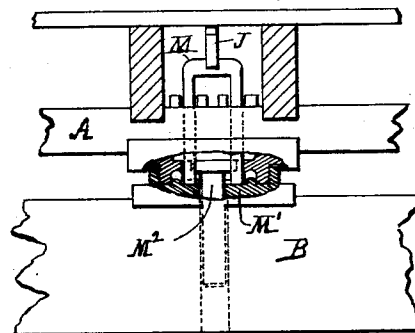


Fig. 4.

WITNESSES.

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2 Sheets—Sheet 2.

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FIG-6.

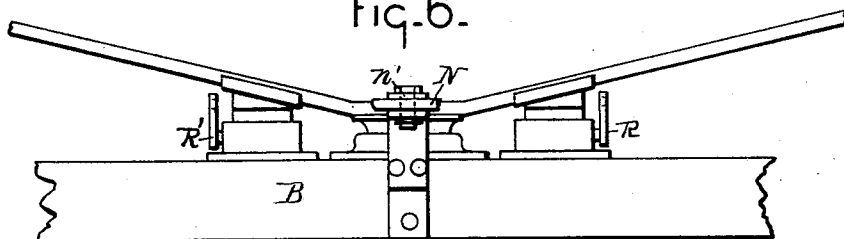


FIG-7.

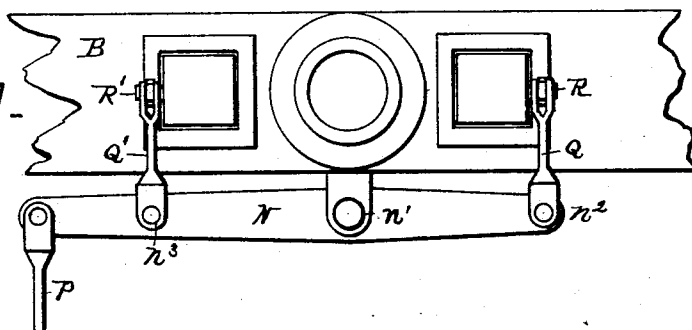
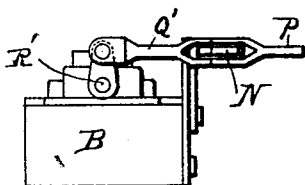


FIG-8.



WITNESSES _

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UNITED STATES PATENT OFFICE.

BENJAMIN WOLHAUPTER, OF MORGAN PARK, ILLINOIS.

BRAKE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 590,446, dated September 21, 1897.

Application filed December 22, 1893. Serial No. 494,412. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN WOLHAUPTER, a subject of the Queen of Great Britain, residing at Morgan Park, county of Cook, State of Illinois, have invented a certain new and useful Improvement in Brake Mechanism; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object the production of mechanism which shall be an improvement on the apparatus shown and described in United States Patent No. 414,108, dated October 29, 1889. In the use of the apparatus there described there have been found certain defects, as follows: It is well known that the brake-beam levers as they are commercially applied to cars at the present time are in a diagonal or inclined position with respect to the brake-beam itself, or, in other words, the brake-beam lever is neither parallel with the brake-beam nor does it cross it at right angles. The reasons for that inclining the brake-beam levers are too well known to need discussion here. With this standard brake-beam lever in order to get a direct pull from the end of this lever to the lever which lifts the car it is necessary to throw this lifting-lever to one side of the truck, and thus when the lever exerts its power to lift the car it is lifting one side of the load and not the center of the load, which, for obvious reasons, is objectionable. Again, in the construction set forth in the above-named patent in order to successfully lift the load a much greater lifting power must be applied to the lifting-lever than can be applied to the brake-rod unless either the standard ratio of leverage-arms of the brake-levers be altered or the power-arm of the lifting-lever be made so long that it would be impracticable. Both of these alternatives are objectionable, because it is neither desirable to alter the ratio of the leverage-arms nor is it desirable to make the power-arm of the lifting-lever extremely long, as it would then be impossible to get a direct pull on it and it would also be in the way.

Therefore in order that the increased leverage may be applied at the lifting-lever without making the latter out of proportion and in order that the ratio of the lever-arms in the brake-beam levers may remain the same and in order that a direct pull may be exerted upon the lifting-lever and still have the latter adjacent to or at the center of the load I provide beyond the last brake-beam lever, or, in other words, between the brake-beam lever and the lifting-lever, an additional lever. The advantage of this lever in addition to overcoming the effects above enumerated will be hereinafter more fully set forth.

In the drawings, Figure 1 is a plan view of a car-truck and accompanying mechanism, illustrating my invention. Fig. 2 is a side elevation. Figs. 3 and 4 are enlarged details. Fig. 5 is an edge elevation of the lifting-lever. Fig. 6 is an edge elevation of a variation, showing a different form of lifting-lever. Fig. 7 is a plan view of the apparatus shown in Fig. 6, and Fig. 8 is an end elevation thereof.

In carrying out the invention, A represents the car-bolster; B, the truck-bolster; C, the axles; D, the wheels; E, the brake-beams; F F', the brake-beam levers; G, the brake-rod, extending from the power to the brake-beam lever F, and H the rod connecting one brake-beam lever with the other.

J is what may be termed the "lifting-lever," acting, as in the above-named patent, to lift the car and its load when sufficient power has been applied to the brake-rod G. This lifting-lever, as shown in Figs. 3 and 4, is pivoted to the casting or block K, which is in turn secured to and supported by the car-bolster A. On each side of the lever J is an $\cap$ -shaped projection k , and in the block K on each side is a pocket k' , shaped to receive the projection, thus fulcruming the lever J in the block K. The weight-arm j of the lifting-lever bears upon the inverted-U-shaped piece M, which in turn extends down to and bears upon the plate M' on the truck-bolster B. This inverted-U-shaped piece, as will be seen, straddles the king-bolt M², so that when the power is applied to the power-arm j' of the lifting-lever the weight-arm j , bearing directly upon the inverted-U-shaped piece, will pry the car-bolster and the truck-bolster apart.

N is a lever fulcrumed, as shown in Fig. 1, at n to the truck-bolster, the opposite end of the lever being connected by the rod P to the brake-beam lever F'. The end of the power-arm j' of the lifting-lever J enters or is connected to this lever N substantially at the middle thereof. It may enter and pass through the lever N, as shown in Fig. 3, or it might be connected with the lever N in any suitable manner. Thus it will be seen that when a pull is exerted upon the brake-rod and is transmitted through the brake-lever F, through the rod H, and through the brake-beam lever F' to the rod P the pull on the rod P will through the lever N be exerted upon the lifting-lever J. Now it is obvious that by making the fulcrum-point n of the lever N adjustable the leverage on the lifting-lever may be increased or diminished to suit the exigencies of each particular case. So, also, it will be seen that if inclined brake-beam levers are used, as is usually the case, a direct pull can be obtained from the end of the brake-beam lever F' to the lever P, and thus a direct pull be exerted upon the lifting-lever, and yet at the same time having the lifting-lever at or substantially at the middle of the car and truck bolster, and thus have the lifting power exerted upon the center of the load.

On Sheet 2 I have shown a variation in the form of the lifting-levers, using in this case cam-levers to pry the truck and car apart, and in this case using two lifting devices for each truck situated equally distant on either side of the center plate or king-bolt. In the construction on Sheet 2, as in the other case, N represents the extra lever, and P the rod, extending from the last brake-beam lever to the extra lever. In this case the lever N is fulcrumed at n' to the truck-bolster. It is obvious that it might also be fulcrumed to the car-bolster, if desired. Extending from the end n^2 of the lever N is a rod Q, the end of which is pivoted to a lifting-lever R. Extending from the lever N at n^3 is a rod Q', pivoted to the end of another lever R'. These levers R R' are arranged in any suitable manner, so that when tilted they will pry the truck and car apart. This construction, as will be seen, is substantially the same as that shown on Sheet 1, the difference being that in the latter construction there is a single lifting-lever, while in this construction there are two, one on each side of the center plate, and also in the construction on Sheet 1 the lever N is fulcrumed at one end, while in this case the lever N is extended beyond the fulcrum-point and another lifting device attached thereto. The advantages of a supplemental or extra lever such as I have shown and described are obvious. In the first place, they overcome the objections to the construction set forth in the above-mentioned patent. In the second place, they provide a means whereby by adjustments of leverage may be easily and quickly made.

What I claim is—

1. In a brake mechanism the combination with the brake-levers and the connecting-rods, and a lifting-lever arranged to lift the car-body, of a lever beyond the last brake-lever of the system and to which said last brake-lever and the lifting-lever are connected, substantially as described.
2. In a brake mechanism the combination with the brake-lever, the connecting brake-rods and a lever arranged to lift the car-body and forming a fulcrum for the brake-lever of an extra lever located between said brake-lever and the lifting-lever and forming the connection for the two, substantially as described.
3. In a brake mechanism the combination with the brake-lever and the accompanying connecting-rods and a lever arranged to lift the car-body of an extra lever fulcrumed to a stationary portion to which said brake-lever and the lifting-lever are connected, substantially as described.
4. In a brake mechanism the combination with the brake-lever and the lifting-lever of an extra lever to which both the brake-lever and lifting-lever are connected the leverage length of the arms of said extra lever being adjustable or variable, substantially as described.
5. In a brake mechanism the combination with the brake-lever and the lifting-lever arranged to lift the car-body, of an extra lever adjustably fulcrumed to a stationary portion, both the brake-lever and the lifting-lever connected to said extra lever, substantially as described.
6. In a brake mechanism the combination with the brake-lever and the accompanying connecting-rods and a lifting-lever arranged to lift the car-body of an extra lever fulcrumed to a stationary portion, one end of said lever connected to the brake-lever, and the lifting-lever engaged to said extra lever at a point between its fulcrum and the connection with the brake-lever, substantially as described.
7. In a brake mechanism the combination with the brake-lever and the accompanying connecting-rods and a bell-crank lever arranged to pry the car and truck apart, of an extra lever connected with the brake-lever and engaged directly to the power-arm of said bell-crank lever, substantially as described.
8. In a brake mechanism the combination with the mechanism arranged to set the brakes of a bell-crank lever located in said braking mechanism, the weight-arm of said bell-crank lever adapted to bear directly upon the inverted-U-shaped piece which bears upon the truck-bolster, substantially as described.
9. In a brake mechanism the combination with the mechanism arranged to set the brakes of a bell-crank lever located in said braking mechanism, said bell-crank lever fulcrumed in a block secured to and sup-

ported by the car-transom and adapted to bear directly on a piece extending from the truck-transom, substantially as described.

10. In a brake mechanism the combination
5 with the block K on the car-transom of the lever J fulcrumed in said block by the projections k entering recesses k' in the block, the weight-arm of said lever bearing on a

piece extending to the truck-transom, substantially as described. 10

In testimony whereof I sign this specification in the presence of two witnesses.

BENJAMIN WOLHAUPTER.

Witnesses:

C. J. SHIPLEY,

WALTER H. CHAMBERLIN.