No. 703,818. Patented July 1, 1902.

J. PLATTENBURG.

CAR BRAKE.

(Application filed Feb. 21, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

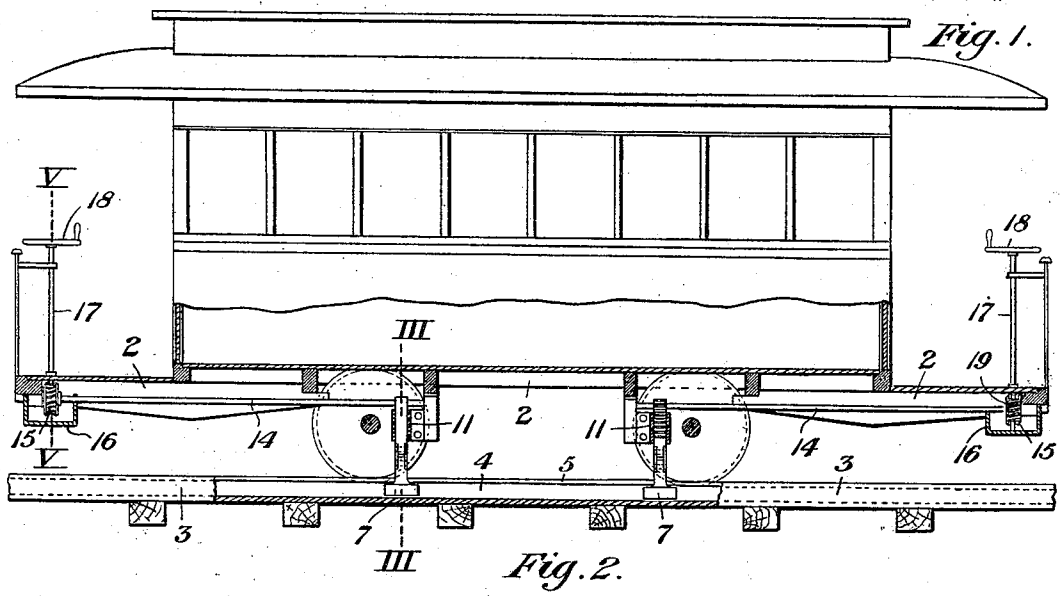


Fig. 2.

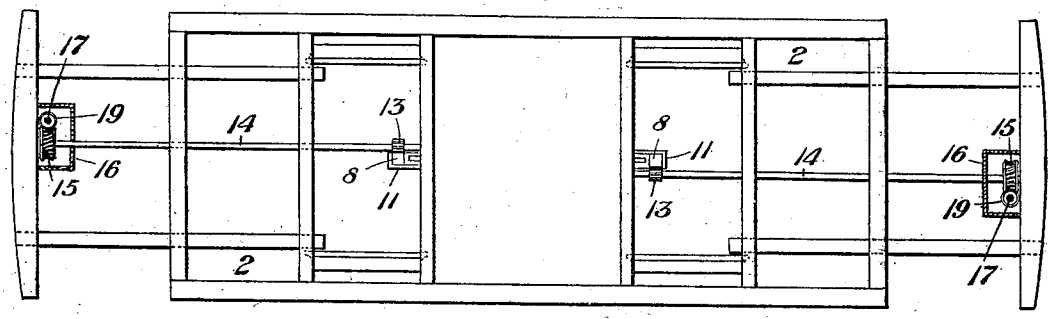


Fig. 3.

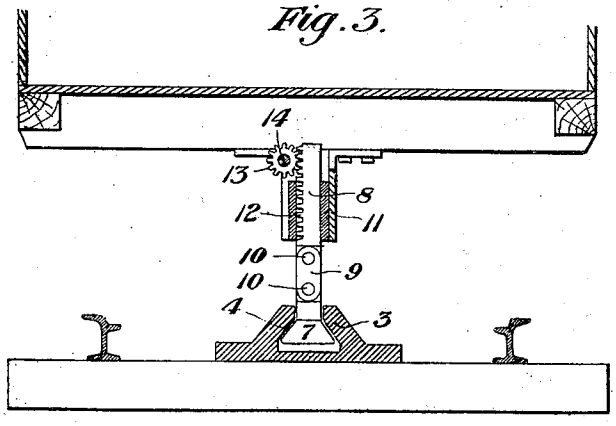
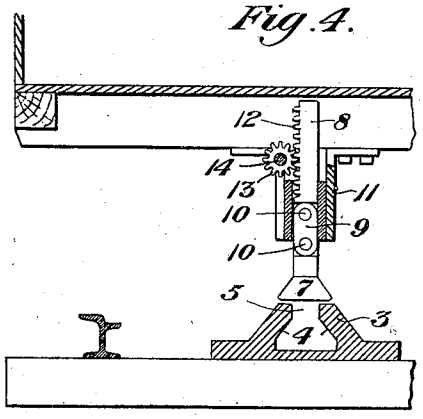


Fig. 4.



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(No Model.) 2 Sheets—Sheet 2.

Fig. 5.

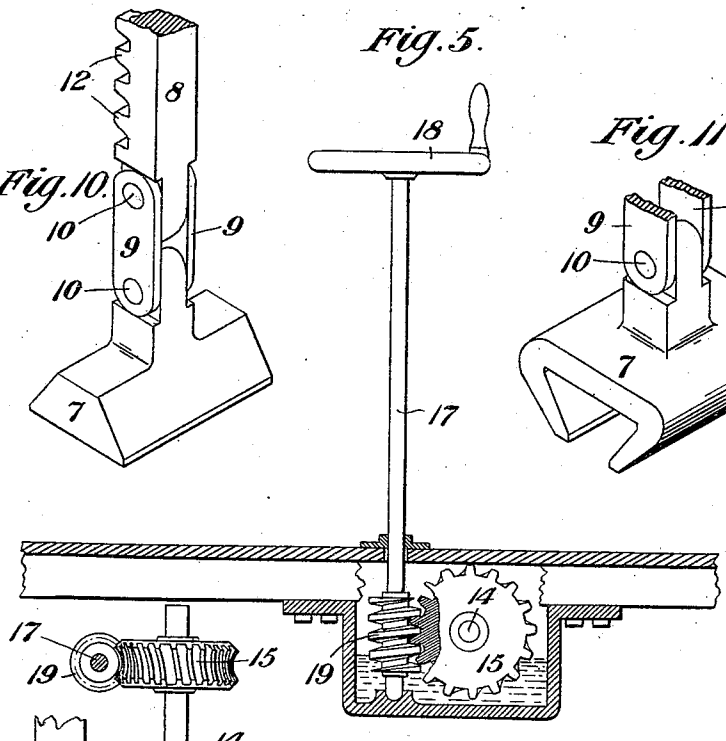


Fig. 10.

Fig. 11.

Fig. 6.

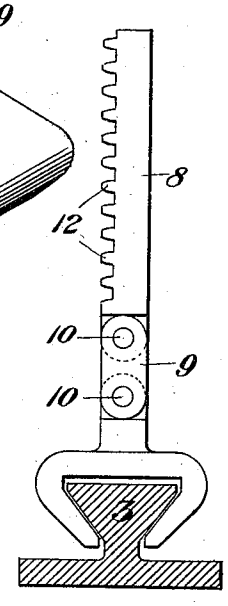


Fig. 7.

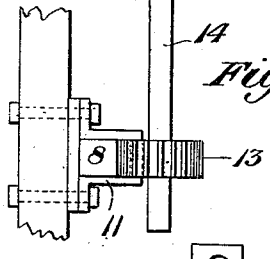


Fig. 8.

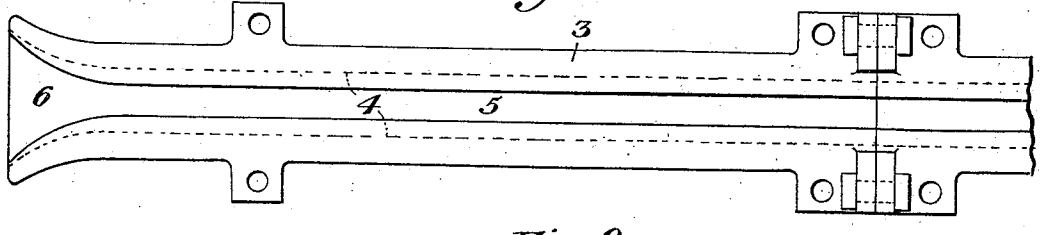
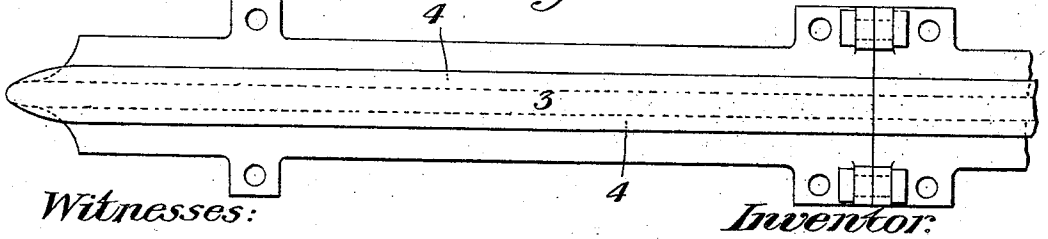


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOSEPH PLATTENBURG, OF McKEESPORT, PENNSYLVANIA.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 703,818, dated July 1, 1902.

Application filed February 21, 1902. Serial No. 95,037. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH PLATTENBURG, a citizen of the United States, residing at McKeesport, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Car-Brakes, of which the following is a specification, reference being had therein to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view in side elevation, partly in section, showing a car equipped with my improved safety-brake. Fig. 2 is a plan view of the foundation-framework of the car, showing the apparatus in its relation thereto. Fig. 3 is a cross-sectional view, indicated by the line III III of Fig. 1, on an enlarged scale, showing the brake in engagement with the central member, with which the brake-shoe engages. Fig. 4 is a similar view showing the brake-shoe raised out of engagement. Fig. 5 is a vertical sectional view, on a further-enlarged scale, indicated by the line V V of Fig. 1. Fig. 6 is a partial detail similar to Fig. 3, but showing a modified construction of the brake-shoe and the central engaging member. Fig. 7 is a detail plan view of the operating mechanism, illustrating a modified arrangement. Fig. 8 is a plan view of one end of the central engaging member. Fig. 9 is a similar plan view of the modified construction shown in Fig. 6. Figs. 10 and 11 are detail perspective views of the vertically-adjustable sliding friction-shoes adapted to engage with such stationary members.

My invention refers to an improvement in car-brakes, and it is especially designed for the purpose of providing a safety or emergency brake for use on grades, the object of the invention being to apply a very powerful binding friction in such a manner as to bind the car downwardly against the rails, while at the same time interposing a strong retarding friction in such a manner as to effectually overcome the speed or momentum of the car or to regulate it within certain well-defined limits.

The invention consists in providing a stationary longitudinal bearing member, preferably located between the rails, with which a vertically-adjustable sliding shoe is adapted to engage, said shoe being capable of adjustment vertically, so as to vary the amount of frictional pressure, which pressure is governed and controlled by the powerful adjusting apparatus hereinafter described, and shown in the drawings.

I have utilized the well-known binding power of the wedge in both forms in which the invention is applied, and in order that the invention may be fully understood reference is had to the accompanying drawings and to the hereinafter-detailed description.

Referring now to the drawings, 2 represents the underframing of a car, which may be of any desired construction, either of the wood or metal, and which may constitute a car of any description or for any purpose, either passenger or freight. Mounted on the cross-ties, between the rails or in any other suitable or convenient manner or location, is a longitudinal friction member 3, which may be of the form shown in Figs. 1, 3, 4, and 8, adapted to receive a sliding shoe internally, or of the forms shown in Figs. 6 and 9, adapted to receive the shoe externally, and in either case such stationary member is provided with tapering faces, with which the adjustable sliding shoe is adapted to engage and bind. In the principal figures of the drawings the stationary member 3 is provided with an internal triangular-shaped opening, the inner faces 4 of which converge upwardly, terminating in a central longitudinal slot 5. The entering end of the track member 3 is preferably flared outwardly, as shown at 6 in Fig. 8, to facilitate the entrance of the shoe. The shoe 7 is shown in detail in Fig. 10, consisting of an elongated body portion having wedge-shaped sides adapted to contact with the sides 4 and when raised to exert binding pressure thereupon. The shoe is suspended from an upper bar 8 by means of links 9, pivotally connected with the bar and the shoe by bolts or pins 10 10 in such a manner that considerable lateral movement of the car may occur without affecting the alinement and proper engagement of the shoe with the longitudinal member 3.

The upper portion of the bar 8 is slidingly mounted in a box or bearing 11, secured to the under framework of the car, and the bar is likewise provided with rack-teeth 12 on one side, with which teeth engage the teeth of

the pinion 13, mounted on shaft 14, which shaft is likewise secured in suitable bearings in the framework. The shaft 14 at its other end is provided with a worm-wheel 15, preferably mounted in a surrounding casing or box 16, adapted to contain oil or other suitable lubricant, in which a portion of the worm-wheel is at all times immersed.

17 is a vertical shaft or rod terminating in an upper hand-wheel 18 and provided at its lower end with a worm 19, in engagement with the worm-wheel 15, by which means the shaft 14 may be rotated in either direction, so as to raise or lower the bar 8, with its shoe 7. It will be seen that by means of the worm-gearing and the rack and pinion a very powerful leverage is exerted upon the shoe, so that a strong binding pressure may be exerted by it upon the longitudinal member 3 by means of the exertion of ordinary power through the wheel 18 and shaft 17. This construction is, as shown, duplicated at each end of the car, and it will be understood that either one or both of the brakes may be applied at the same time, according to the amount of pressure desired or the degree of grade.

In the form of the central member and brake-shoe shown in Figs. 9 and 11 the conditions are merely reversed, the brake-shoe in such case entering the central member or rail, while the operating mechanism is the same in both cases.

It will be understood that the central stationary member is to be rigidly secured to the ties or road-bed by spikes or bolts or in any other suitable manner and that it may be made in sections connected together and of any length and also either straight or curved to correspond with the track with which it is incorporated. It may be made of any metal or material suitable for the purpose and may be either cast or rolled, and also the hollow form shown in Figs. 1, 3, 4, and 8 may be divided longitudinally to facilitate the rolling operation, if desired.

The arrangement shown in Fig. 7 may be used where it is preferred to locate the brake-shoe closer to the end of the car—as, for instance, where there is not sufficient space farther back by reason of the motors or other construction, and in this case the shaft 14 is located transversely of the car instead of longitudinally and is provided with the worm-wheel 15 and pin *i* on 13, in engagement with the worm 19 and rack 12, as has already been described.

The brake is principally designed to be applied on heavy grades where the ordinary brakes are inoperative by reason of slippage, ice, &c. The apparatus operates to bind the car downwardly against the rails, and the application of power is entirely independent of the car-wheels themselves. Ordinarily the shoes are kept raised until the grade is approached, when they are lowered into engagement and then drawn up tightly, applying frictional braking power in whatever degree is required.

It will be understood that various other changes or modifications of the invention may be made by the skilled mechanic, as by substitution of other forms of gearing or other details, without departing from my invention, while the proportions of the various parts are to be adapted to the objects in view according to the size of the car, grade, or other controlling elements, and all such changes may be made by the designing engineer and are to be considered as within the scope of my invention and the following claims.

What I claim is—

1. The combination with a longitudinal integral member provided with inclined faces, of an integral vertically-adjustable shoe adapted to be lowered into longitudinal alinement with and slide along said member and to engage said faces.

2. The combination with a longitudinal integral member provided with inclined faces, of an integral sliding shoe provided with similarly-inclined faces adapted to be lowered into longitudinal alinement with and slide along said member and to engage said faces, and means for raising and lowering the shoe.

3. The combination with a longitudinal member provided with inclined wedge-faces, of a shoe adapted to engage said faces, means for lowering and raising the shoe and flexible connections between the shoe and said raising means.

4. The combination with a longitudinal member provided with inclined wedge-faces, of a sliding shoe adapted to engage and bind upon said faces, a rack-bar, and intervening link connections, with means for raising and lowering the rack-bar.

5. The combination with a longitudinal member provided with inclined wedge-faces; of a sliding shoe adapted to engage and bind upon said faces, a rack-bar, and intervening link connections, a toothed pinion adapted to engage the rack-bar, and means for actuating the pinion.

6. The combination with a longitudinal member provided with inclined wedge-faces; of a sliding shoe adapted to engage and bind upon said faces, a rack-bar and intervening link connections; a shaft provided with a toothed pinion in engagement with the rack-bar, and worm-gearing for rotating the shaft.

7. The combination with a longitudinal member provided with inclined wedge-faces; of a sliding shoe adapted to engage and bind upon said faces, a rack-bar and intervening link connections, a shaft provided with a toothed pinion in engagement with the rack-bar, and worm-gearing for rotating the shaft, with a case surrounding the worm-gearing adapted to contain a lubricant.

8. The combination with a longitudinal member provided with inclined wedge-faces; of a sliding shoe adapted to engage and bind upon said faces, a rack-bar and intervening

link connections, a shaft provided with a pinion in engagement with the rack-bar, a worm-wheel mounted on the shaft, and a vertical shaft provided with a crank-handle and a worm in engagement with the worm-wheel.

9. The combination with a longitudinal member provided with inclined wedge-faces; of a sliding shoe adapted to engage and bind upon said faces, a rack-bar and intervening link connections, a shaft provided with a pinion in engagement with the worm-wheel, and a surrounding casing inclosing the worm-wheel and worm and adapted to contain a lubricant.

10. Apparatus for braking cars consisting of a longitudinal member mounted on the road-bed provided with inclined wedge-faces, a shoe provided with similarly-inclined wedge-faces, adapted to engage the faces of said member, a vertical rack-bar, flexible connections with the shoe, a shaft provided with a toothed pinion in engagement with the rack-bar, and a worm-wheel, and a vertical turning shaft provided with a worm in engagement with said worm-wheel.

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

JOSEPH PLATTENBURG.

Witnesses:
HAROLD V. NEWLIN,
GEO. B. HERWICK.