

(No Model.)

2 Sheets—Sheet 1.

A. O'BRIEN & C. B. MILLER.
COMBINED CAR COUPLING AND BRAKE.

No. 554,195.

Patented Feb. 4, 1896.

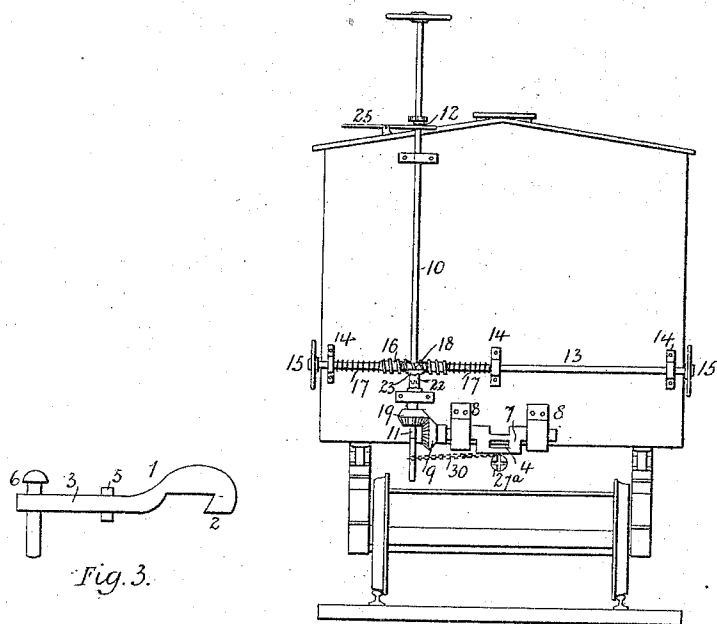


Fig. 1.

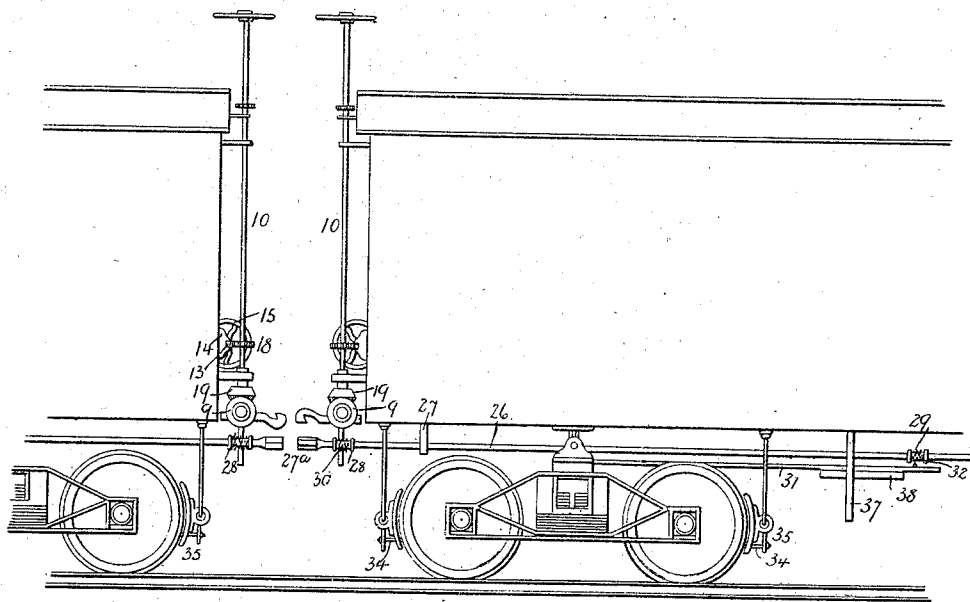


Fig. 2.

Witnesses

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S. E. Zimmerman

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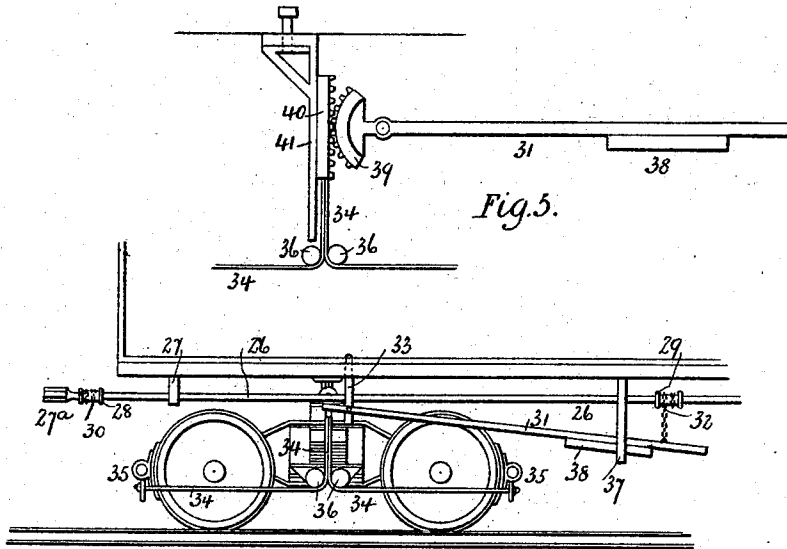


Fig. 4.

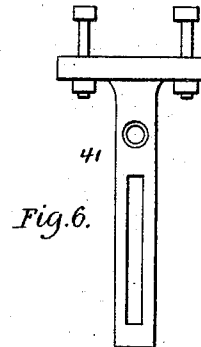


Fig. 6.

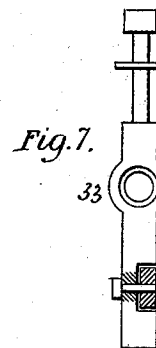


Fig. 7.

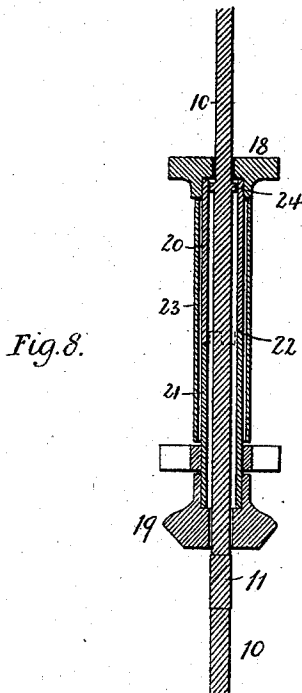


Fig. 8.

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UNITED STATES PATENT OFFICE.

ARTHUR O'BRIEN AND CHARLES B. MILLER, OF HELENA, MONTANA.

COMBINED CAR COUPLING AND BRAKE.

SPECIFICATION forming part of Letters Patent No. 554,195, dated February 4, 1896.

Application filed May 6, 1895. Renewed January 13, 1896. Serial No. 575,391. (No model.)

To all whom it may concern:

Be it known that we, ARTHUR O'BRIEN and CHARLES B. MILLER, citizens of the United States, residing at Helena, in the county of Lewis and Clarke and State of Montana, have invented certain new and useful Improvements in a Combined Railway-Car Coupler and Brake; and we do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to railway-cars, and more particularly to devices for coupling and braking the cars; and the invention has for its object the production of an improved coupler automatic in operation and improved brake mechanism also automatic in character combined with said coupler in a manner to insure co-operation when required.

The nature of our invention will appear from a reading of the subjoined description, when taken in connection with the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is an end elevation of a car with our invention applied. Fig. 2 is a side view of the adjacent ends of two cars with our improvements in the act of coupling. Fig. 3 is a detail view of one of the couplings. Fig. 4 is a view showing the brake mechanism when active. Fig. 5 is a modified form of brake-actuating mechanism. Figs. 6 and 7 are views of details, and Fig. 8 is a sectional view of the brake-rod clutch.

Referring to the said drawings by numerals, 1 denotes the coupler, the interlocking portions of which are similar in construction, but oppositely arranged, as shown, each member having a hook 2 and a shank 3, which latter is inserted and held in a slot 4 in the operating-shaft by a stop 5 and a pin 6. This slot is arranged in an offset 7 in said shaft, and is of sufficient size to permit of a freedom of movement to the coupler when rounding curves or when running on uneven rails.

The hook portion 2 of each member is provided with a slightly-inclined engaging edge in order that when coupled the said members

may not become accidentally separated, which might be the case were the engaging edges made vertical. The inclination employed, however, is not sufficient to prevent uncoupling by the manipulation of the brake-rod, which operates through gear connection, as will be presently explained, to partially rotate the operating-shaft and thereby to disconnect and elevate one of the members free from the other. The extreme end of the members is made beveled, in order that one of them will, when the parts come together, be raised automatically until the coupling is effected.

The coupling, as shown, extends radially from the shaft, and the latter is mounted in brackets 8 8, secured to the car, and 9 is a bevel gear-wheel fixedly secured on the end of said shaft. The operation of coupling is, by the employment of the members just described, rendered automatic, and to effect the uncoupling of the members we employ the brake-rod and intermediate mechanism which we will now describe. The brake-rod is shown at 10 and extends below the bottom of the car, and on this rod and near its lower end we secure a square sleeve 11, and near the upper end thereof a collar 12, the purpose of both appearing hereinafter.

13 is a horizontal shaft journaled in bearings 14 on the end of the car, and having hand-wheels 15 15, by which said shaft can be rotated. A portion of this shaft is square in cross-section, and 16 is a worm having a square opening fitting said portion, this arrangement insuring the rotation of the worm with the shaft, but permitting endwise movement in both directions against the action of springs 17 17, coiled around the shaft and confined between the ends of the worm and the adjacent bearings 14. Loose on the brake-rod is a pinion 18, which normally meshes with the worm, and below said pinion is a bevel gear-wheel 19, which meshes with the gear-wheel 9. Connected to the pinion and bevel gear-wheel are two sleeves 20 21, the free ends of which are provided with teeth to form a clutch 22, and these sleeves are protected from dust and dirt by an inclosing sleeve 23. The brake-rod is provided with a collar 24 below the pinion for supporting the latter, and the rod is capable of a vertical movement through the action of a foot-lever

25, the inner-end of which bears against the collar 12. When in the operation of coupling one of the members is held against rotation, while the other yields and is allowed
 5 a sufficient movement through the partial rotation of the shaft and through the bevel-gears and pinion, and the clutch being closed, the worm is moved by the rotation of the pinion against the action of one of the springs,
 10 which latter acts to restore the member and thereby insure the engagement. In coupling the operation can be effected at the sides of the car by rotating the shaft, or from the top by raising the rod and turning same, the
 15 bevel-gearing communicating the motion. Referring now to the brake mechanism, 26 denotes a brake-shaft journaled in bearings 27 on the under side of the car and extending the entire length thereof, with the ends projecting and provided with chuck-heads 27^a 27^b
 20 for engagement with the shafts of adjacent cars when the cars are coupled, whereby all of the brakes on the train may be simultaneously operated. Near each end of the shaft is a sheave 28, and a similar sheave 29 is secured to said shaft beyond the truck, as shown. The sheave 28 is connected to the brake-rod by a chain 30, and the sheave 29 is connected to a brake-lever 31 by a chain 32. This brake-lever is
 30 pivoted near one end to a post 33 depending from the car, and near said pivotal point the lever is connected by chains or wire rope 34 34 to the brake-shoes 35 35, the chains or rope passing around pulleys 36 36 on the truck. The other end of the lever, which has chain connection with the brake-shaft, is movable in a guide 37 and is provided with a weight 38. As a modification of the lever, 39 is a
 40 toothed segment on the short arm of said le-

ver, which engages a toothed rack-bar 40 slidable in a frame 41 depending from the car. In this modified arrangement the chains or straps 34 are connected with the rack-bar. In the operation of our improved brake mechanism, the brake-rod being turned the lever is released and following rapidly applies the brakes through the chains or straps. In the case of a car becoming detached on a down-grade, or derailed, the brakes will be set automatically, thus avoiding accidents so frequent in mountainous countries.

It will thus be seen that the brake-rod is employed to operate both the coupler and the brake, thereby simplifying the operations of running a train, and if desired the brake-shaft may, by the employment of suitable means, be operated from either side of the car instead of from the top.

What we claim as our invention is—

1. In combination with a brake-rod, a coupler and means for disengaging said coupler operated by the rod, and a brake-lever flexibly connected with the brake-shoes and with a brake-shaft and a flexible connection between the said shaft and rod.

2. In combination with a brake-rod, a coupler, and means for disengaging said coupler operated by the rod, the brake-shaft having the sheaves and chain connection with the rod, the weighted brake-lever having chain connection with the shaft, and connections between the brake shoes and lever.

In testimony whereof we affix our signatures in presence of two witnesses.

ARTHUR O'BRIEN.

CHARLES B. MILLER.

Witnesses:

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