

No. 673,894.

Patented May 14, 1901.

C. W. BETZ.  
BRAKE OPERATING DEVICE.

(Application filed July 23, 1900.)

(No Model.)

Fig. 1.

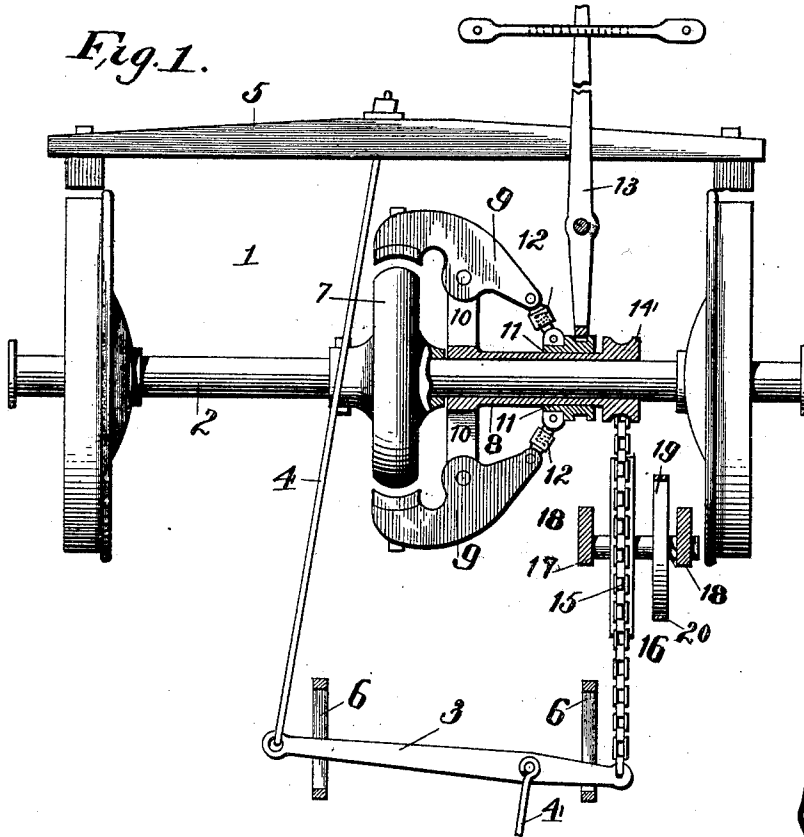
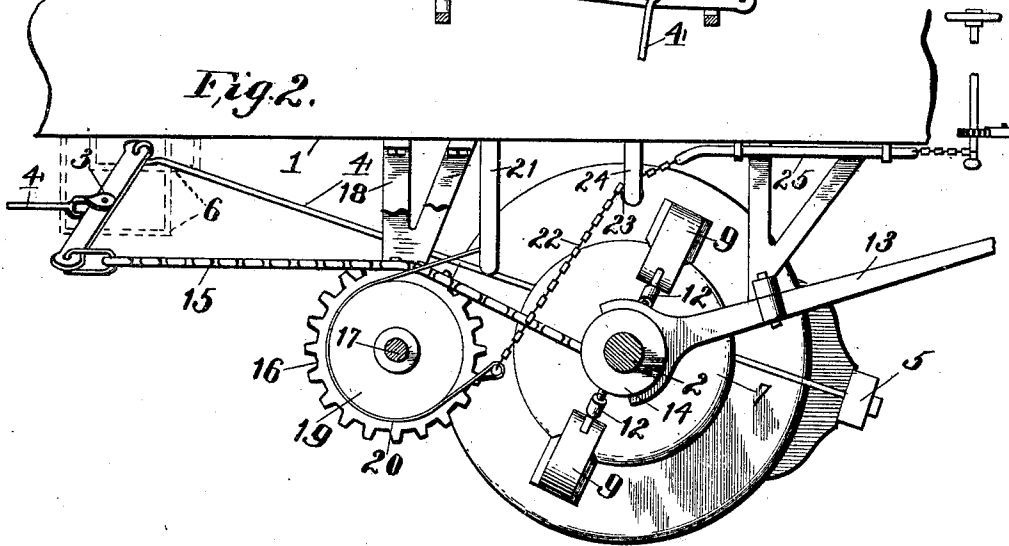


Fig. 2.



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# UNITED STATES PATENT OFFICE.

CHARLES W. BETZ, OF BELLEVILLE, ILLINOIS.

## BRAKE-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 673,894, dated May 14, 1901.

Application filed July 23, 1900. Serial No. 24,568. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. BETZ, a citizen of the United States, residing at Belleville, in the county of St. Clair and State of Illinois, have invented a new and useful Brake-Operating Device, of which the following is a specification.

My invention relates to car-brakes, and has for one object to produce a brake which will be operated by the momentum of the car and can be so adjusted as to place any desired degree of tension or resistance upon the wheels to which it is applied.

Another object is to provide means by which the brake can be held in any position after it has been set, thereby preventing the car from running back down an incline after it has been stopped.

Still another object is to so connect the different brakes together that they can be applied to a train of cars either steam or electrically propelled.

With these objects in view my invention consists in the improved construction and novel arrangement of parts of a car-brake, as will be hereinafter more fully set forth.

In the accompanying drawings, in which the same reference-numerals indicate corresponding parts in each of the views in which they occur, Figure 1 is a top plan view, partly in section, showing my improved brake mechanism applied to a car-axle. Fig. 2 is a side view of the bottom of a car, showing my improved brake applied thereto, one of the wheels of the car being removed.

Referring more particularly to the drawings, 1 indicates the car-body, which may be of any ordinary construction, provided with the usual wheeled axles 2 and brake-lever 3, from which the brake-rods 4 extend to the brake-beams 5. Suitable loops or staples 6 may project from the under side of the car for supporting the ends of the brake-lever 3. A friction-wheel 7 is rigidly secured upon the axle substantially near the center, and a sleeve 8 is loosely mounted upon the axle adjacent to the friction-wheel. Two arms or clutch members 9 are pivotally secured upon cross-arms 10, projecting from the sleeve, in position to cause one end of each lever to engage with the periphery of the friction-wheel 7 when it is desired to operate the brake. The

opposite ends of the levers are connected with a collar 11 by means of links 12. The links are preferably adjusted in the usual manner, and the collar 11 is moved longitudinally upon the sleeve by means of a lever 13.

The outer end of the sleeve 8 is provided with an enlargement or drum 14, upon which is secured one end of a chain 15. The other end of the chain is secured to the outer end of the brake-lever 3. The intermediate portion of the chain passes over a sprocket-wheel 16 on a shaft 17, which is journaled in suitable hangers 18, that project down from the bottom of the car. A plain-surfaced friction-wheel 19 is also secured upon the shaft, so as to rotate therewith and to prevent the rotation of the shaft and the sprocket-wheel and hold the brakes set in any position when the friction-wheel is locked against retrograde movement. A steel friction-band 20 is secured to a bracket 21 at one end and is passed around the friction-wheel in position to be placed in engagement therewith. A chain 22 is secured to the free end of the band and is passed over a pulley 23 in brackets 24. A rod 25 is connected with the end of the chain and extends to the forward end of the car, where it may be operated in any suitable manner for the purpose of holding the band in engagement with the friction-wheel.

In using my improved momentum-brake the parts are so arranged relatively to each other that normally the brake is out of contact with the wheel. When it is desired to set the brake, the lever 13, which may extend to the end of the car, is thrown over a sufficient distance to cause the opposite end to slide the collar upon the sleeve toward the rigid wheel or pulley upon the axle a sufficient distance to secure the desired amount of pressure from the brake upon the car-wheel. As the collar is thrown over the outer ends of the clutch members are forced apart by the action of the links between the collar and the members, which will cause the opposite ends of the clutch members to engage with the rigid pulley and be rotated therewith. The clutch being secured to the sleeve, the rotation of the members will necessarily carry the sleeve around with them, and thus wind the brake-chain upon the drum at the end of the sleeve. As soon as the tension or

pull upon the brake-chain exceeds the friction between the clutch members and the rigid pulley the sleeve will not be rotated and the pulley will move without carrying the clutch members with it. In this manner any desired degree of tension may be placed upon the brakes by moving the lever 13 over to a greater or less extent to secure the desired frictional contact between the pulley and the clutch members. By providing the lever 13 with a suitable extension it can engage with a notched rack at the end of the car, each notch of the rack indicating a certain degree of tension.

15 In case the car should be going up an incline and it is desired to stop it, the brake should be applied just before the car comes to a standstill and the band around the friction-wheel should be drawn tightly into engagement therewith, so as to prevent any retrograde movement of the friction-wheel. In this manner the car can be held stationary so long as the band is held against the wheel, which will retain the brakes in their "set" position. 25 When it is desired to release the brakes, the engagement of the band with the friction-wheel is released, gradually or otherwise, which will permit of the brakes being removed from the car-wheels, when the car can be moved as desired.

30 Although I have shown what I consider the most desirable manner of applying my momentum-brake, yet I reserve the right to make such changes and alterations therein as will come within the limit and scope of my invention.

35 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

40 1. In a momentum-brake, the combination, with a car provided with a wheeled axle and

brake mechanism, of a friction-pulley upon the axle, a sleeve loosely mounted upon the axle adjacent to the pulley provided with a drum at one end and arms at the other, clutch members pivotally secured to said arms in position to engage with the pulley, a collar between the arms and the drum, links secured to the collar and to the levers, an operating-lever connected with the collar, and a chain secured to the drum at one end and to the brake mechanism at the other, substantially as described.

2. In a momentum-brake, the combination, with a car provided with a wheeled axle and brake mechanism, of a friction-clutch upon the axle provided with a drum, a chain from the drum to the brake mechanism, a sprocket-wheel in engagement with said chain, a friction-wheel connected with said sprocket-wheel, and a band for engaging with said friction-wheel, substantially as described.

3. In a momentum-brake, the combination, with a car provided with a wheeled axle and the brake mechanism, of a friction-clutch upon the axle provided with a drum, a chain from the drum to the brake mechanism, a shaft journaled adjacent to the drum provided with a friction-wheel and a sprocket-wheel, the sprocket-wheel being in position to engage with said chain, brackets adjacent to the friction-wheel, one of which is provided with a pulley, a friction-band secured to the other bracket in position to pass around said wheel, a chain secured to the end of said band and passing over said pulley, and a rod connected with said chain, substantially as described.

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