

No. 628,550.

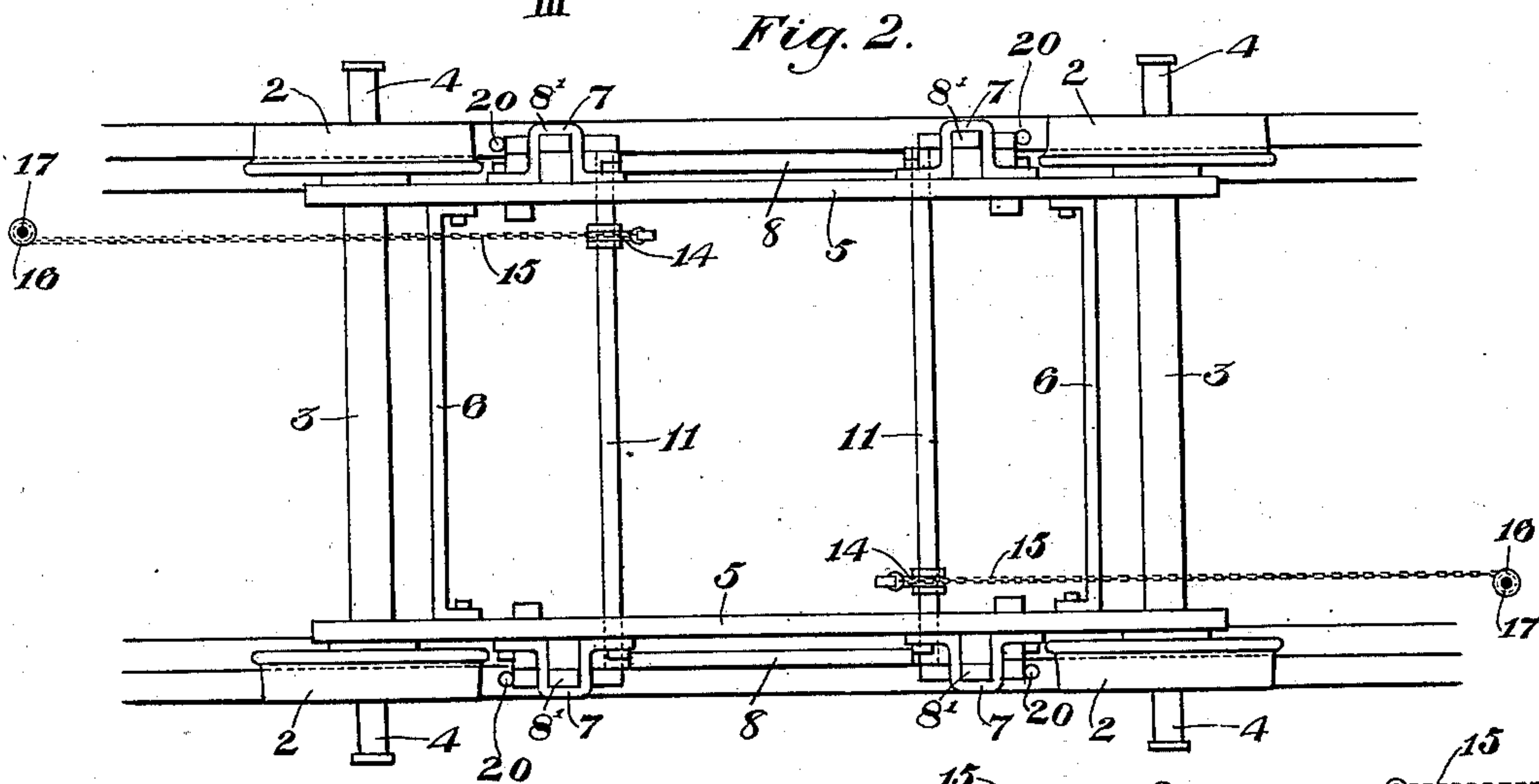
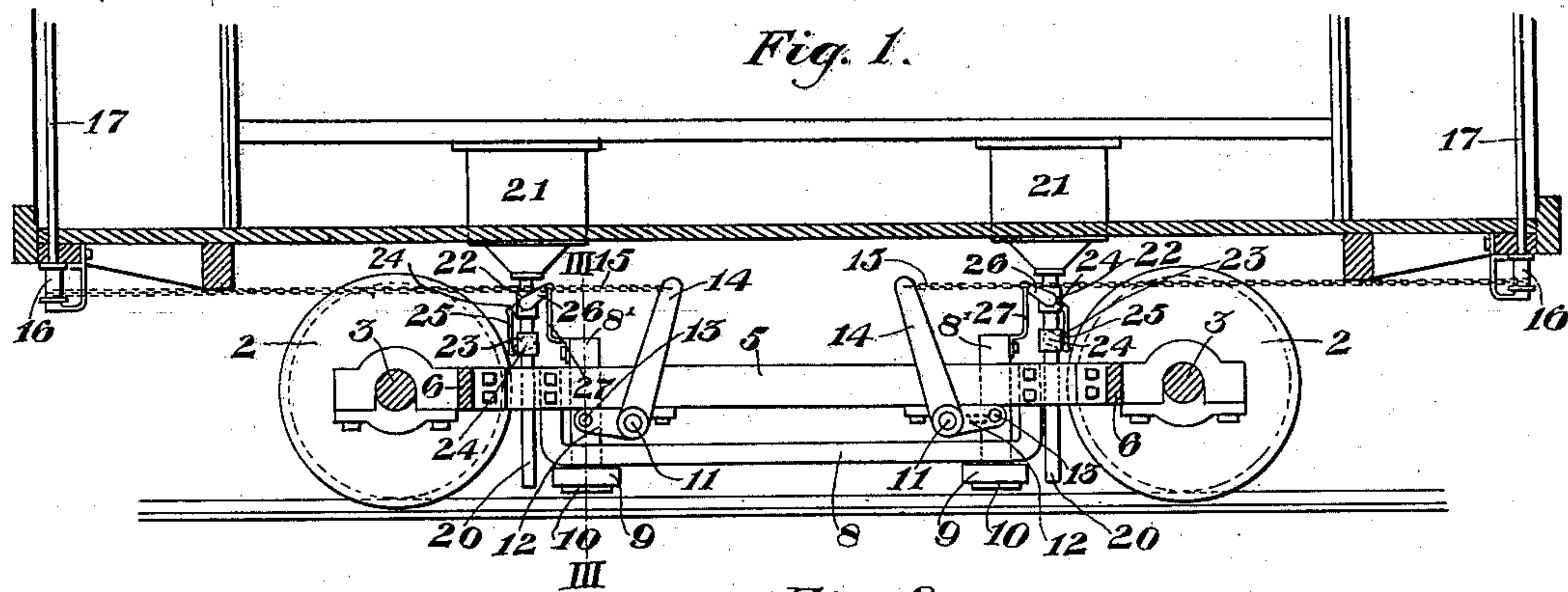
Patented July 11, 1899.

S. M. RODGERS & E. SCOTT.

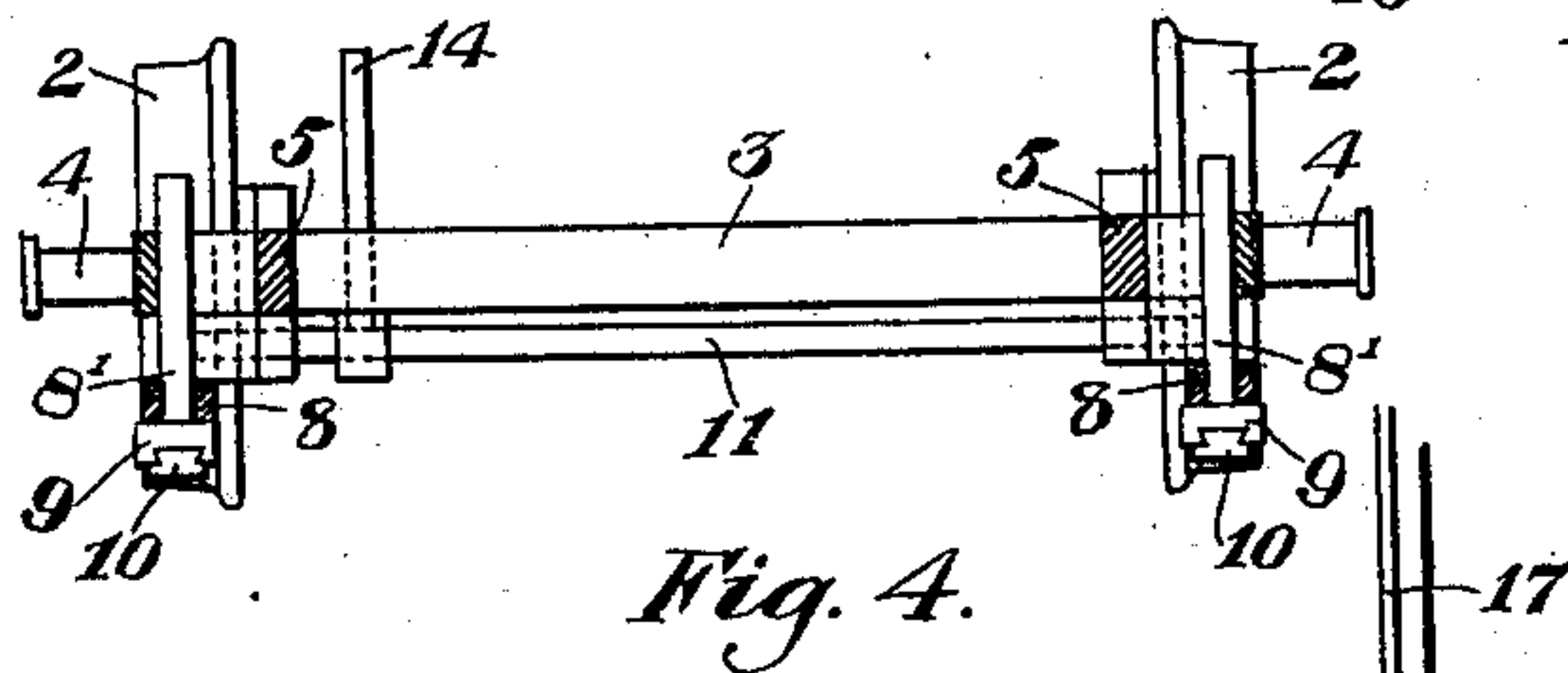
CAR BRAKE.

(Application filed Apr. 13, 1898.)

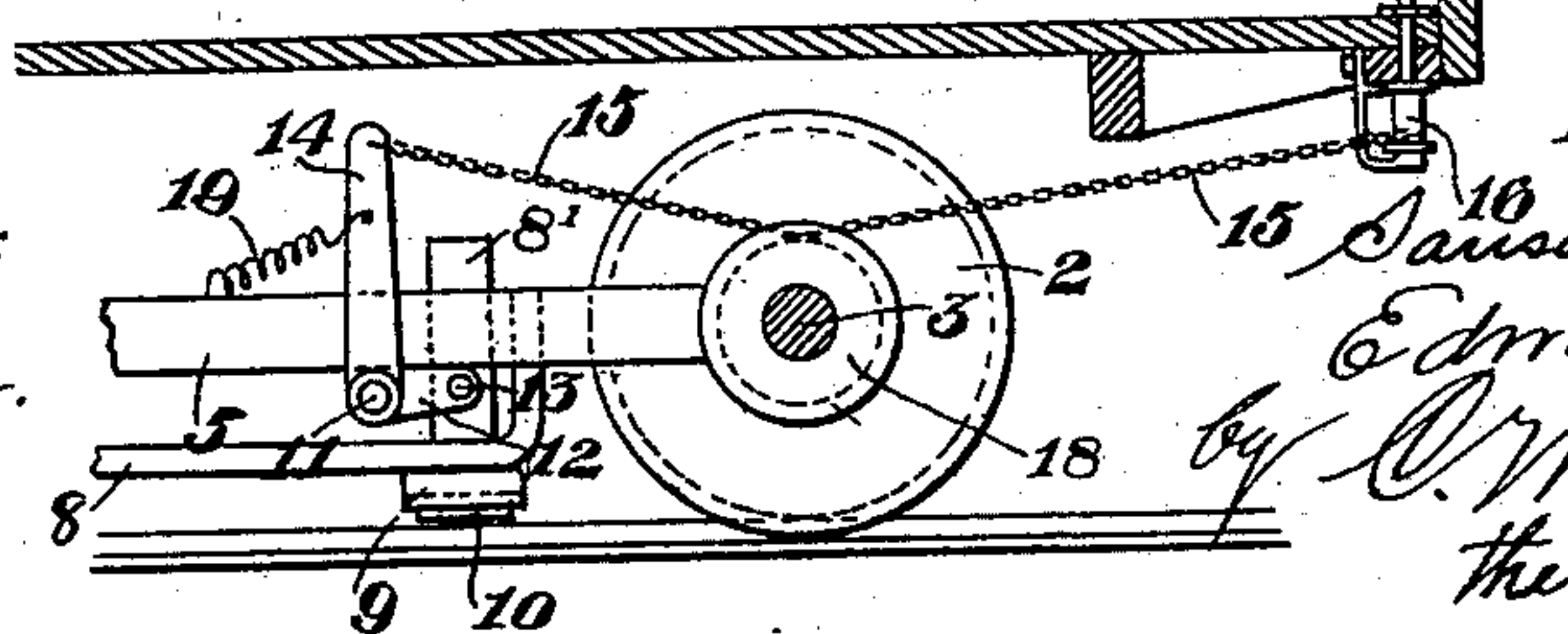
(No Model.)



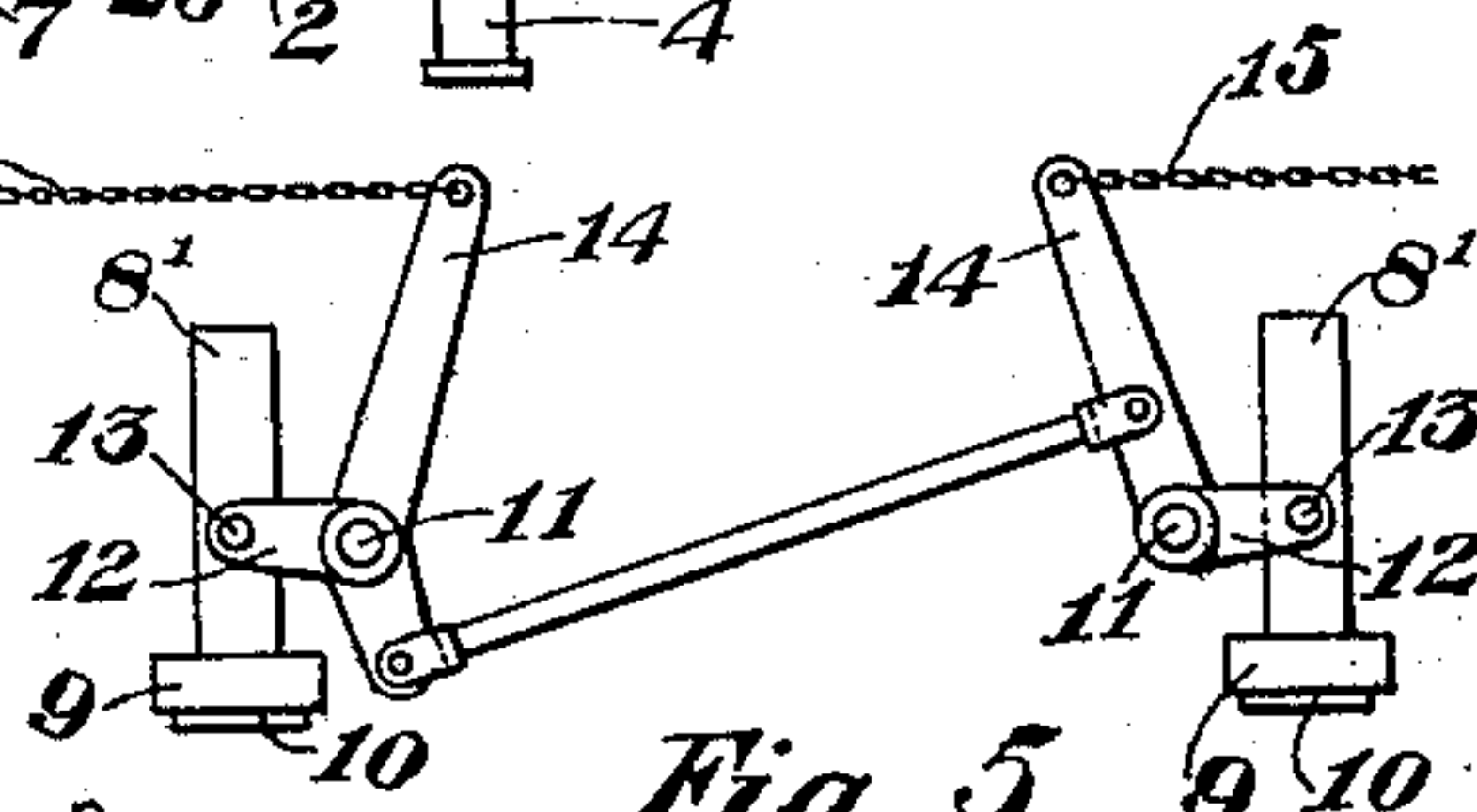
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

SAUSON M. RODGERS AND EDWARD SCOTT, OF PITTSBURG, PENNSYLVANIA.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 628,550, dated July 11, 1899.

Application filed April 13, 1898. Serial No. 677,398. (No model.)

*To all whom it may concern:*

Be it known that we, SAUSON M. RODGERS and EDWARD SCOTT, citizens of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a new and useful Improvement in Car-Brakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central longitudinal sectional view through a car equipped with our improved brake. Fig. 2 is a plan view of the braking mechanism and its supporting-framework. Fig. 3 is a cross-sectional view taken on the line III III of Fig. 1. Fig. 4 is a detail view showing an arrangement whereby the rotation of the axle is utilized to apply the brake. Fig. 5 is a detail view illustrating a modification of the braking-levers.

Our invention relates to braking mechanism for cars, and is particularly adapted to street-railway cars, the object being to produce a brake capable of very powerful action, easy application, and without injury or wear to the wheels of the car. To this end we have designed a brake adapted to act upon the rails of the track, so located immediately adjacent to the wheels as to insure contact on curves and so mounted in suitable supporting-framework in relation to the wheels that it will be independent of and not affected by movement of the car body and truck.

Our invention also consists in a novel arrangement for supplying sand to the track in advance of the brake and in other details of construction, which we shall now proceed to describe.

Referring to the drawings, 2 are the car-wheels, mounted on the ends of the usual axles 3 and provided with journals 4 for the customary boxes of the car-supporting truck. Upon the axles is mounted a rigid frame consisting of side bars 5, journaled to the axles at each end immediately inside the wheels and provided with cross-braces 6. Upon the sides of the bars 5, close to the wheels, are secured guides 7, and below the sides are secondary guide-bars 8, having guiding-sockets in vertical alinement with the guides 7, and vertically mounted in such upper and lower guides are the brake-bars 8', provided at the bottom with a socket 9, in which is remov-

ably mounted a brake-shoe 10, set in by a dovetail or other suitable attachment, so as to be easily removed for replacement when worn. It is designed that four of such brake-bars shall be so mounted in the framework 5, constituting two pairs, forward and back, and either pair is to be operated in the rear of the forward advancing wheels, or both pairs may be operated from either end of the car by employing the construction shown in Fig. 5. For such operation a cross rock-shaft is mounted in boxes secured to the frame 5, to which are secured the crank-arms 12, having a pivotal connection at 13 to the brake-bars, so that movement of the rock-shaft will transmit through crank-arms 12 reciprocating movement to the brake-bars..

For the purpose of operating the rock-shaft an upwardly-extending crank-arm 14 of somewhat greater length is secured to the rock-shaft, to the upper end of which crank-arm 14 is attached the end of brake-chain 15, leading to the spool 16 of brake-post 17, whereby rotation of the post and spool will wind the chain, draw the cranks 14 forward, and throw the brake-bars 8 downwardly, bringing the shoes 10 into braking contact with the rail with such degree of frictional force as may be exerted through the post 17 by manual force.

For the purpose of utilizing the rotation of the axle to apply the brake the chain 15 may be wound one or more times around a sheave 18, affixed to the axle, whereby upon tightening the chain by rotating the brake-post the rotary action of the sheave will exert a pulling force upon the chain and lever in proportion to the tightness with which the chain is drawn around the sheave and the consequent friction thereon.

Any suitable means, such as a spring 19, may be employed to retract the arm 14 and raise the shoe from contact when the brake is released. It will be seen that by reason of the frame being supported directly on the car-axle and not on the truck, as is the case with other forms of brake, the working parts are maintained in unvarying relation to the track and are not affected by variations in the load in the car or by its accompanying vibration, whereby the brake may be applied and exerted continuously with unvarying force, thus insuring gradual stoppage of the car without undue jarring.

It is desirable in braking cars that the ap-



plication of sand to the track shall occur at the time that the brakes are applied and cease when the car comes to a stop and the brakes are released, so as to prevent undue waste of sand. For this purpose the conducting-pipe 20, leading from the sand-box 21, is provided with upper and lower valves 22 23, the upper valve being open when the lower is closed, and vice versa. These valves are each provided on one side with short arms 24, connected by link 25, and one of the valves is provided on the other side with a crank-arm 26, which is connected to the brake-bar 8 by a link 27. When the brake-bar is depressed, the upper valve 22 will be closed wholly or partially and the lower valve 23 will be opened wholly or partially, allowing a limited amount of sand to escape downwardly through the tube and onto the track immediately in front of the brake-shoe 10.

The location, size, and openings through the valves may be proportioned and regulated so as to permit a suitable amount of sand to escape and no more, and such proportions may be regulated to suit the varying requirements and proportions of the other parts.

The tube 20 is rigidly affixed to the frame 5 and the upper end is telescopically connected with the sand-box or provided with a flexible connection, so as to permit of variations and movement of the sand-box.

While it is designed that but one pair of brakes shall be applied at a time, ordinarily and preferably the pair in rear of the front wheels thus being controlled by the motor-man, it will be seen that both pairs may be applied from both ends of the car in case of emergency or from one end by employing the construction shown in Fig. 5.

By applying the brake to the track all braking wear is taken from the wheels, thereby obviating the objectionable flattening and undue wear on the wheels due to locking by the brake-shoe, and the cost of maintaining the running-gear is thus greatly lessened. Our improved brake is very simple and cheap in construction, compact, and powerful, and will commend itself to the manufacturers and users of street-cars by reason of its features of superiority over other forms of brake.

Changes and modifications may be made by the skilled mechanic without departing from our invention, and we do not desire to be limited strictly to the construction shown and described, but to include all such changes and variations as will suggest themselves to the skilled mechanic.

Having described our invention, what we claim is—

1. The combination, in a car-brake, of a rectangular framework journaled upon the axles adjacent to each wheel, guides for brake-bars secured to each side of such framework, secondary guide-bars having guiding-sockets in vertical alinement with such guides, reciprocating brake-bars provided with track-shoes vertically mounted in these guides immedi-

ately adjacent to and in alinement with the wheels, rock-shafts journaled transversely in the framework provided with crank-arms connected to and adapted to depress the brake-bars, retracting-springs for raising the crank-arms and brake-chains connected to the crank-arms and leading to winding mechanism at each end of the car, substantially as set forth.

2. The combination, in a car-brake, of a rectangular framework journaled upon the axles adjacent to each wheel, guides for brake-bars secured to each side of such framework, secondary guide-bars having guiding-sockets in vertical alinement with such guides, reciprocating brake-bars provided with track-shoes vertically mounted in these guides immediately adjacent to and in alinement with the wheels, rock-shafts journaled transversely in the framework provided with crank-arms connected to and adapted to depress the brake-bars, retracting-springs for raising the crank-arms and brake-chains leading around friction-sheaves secured to the axles, and to winding mechanism at each end of the car, substantially as set forth.

3. The combination, in a car-brake, of a rectangular framework journaled upon the axles adjacent to each wheel, guides for brake-bars secured to each side of such framework, secondary guide-bars having guiding-sockets in vertical alinement with such guides, reciprocating brake-bars provided with track-shoes vertically mounted in these guides immediately adjacent to and in alinement with the wheels, rock-shafts journaled transversely in the framework provided with crank-arms connected to and adapted to depress the brake-bars, retracting-springs for raising the crank-arms and brake-chains connected to the crank-arms and leading to winding mechanism at each end of the car and means operating with the brake-bars to open and close a track-sanding device, substantially as set forth.

4. In combination with reciprocating track-brake mechanism: a sand-tube incorporated therewith provided with double valves adapted to be operated in unison with the track-brake mechanism, substantially as set forth.

5. In combination with reciprocating brake-bars vertically mounted in alinement with the wheels in a supporting-framework journaled on the car-axles, sand-tubes rigidly mounted in the framework adjacent to the brake-bars, having communication with gravity-reservoirs, and provided with upper and lower shut-off valves, with connections to the brake whereby a limited amount of sand is discharged by downward movement of the brake-bars, substantially as set forth.

In testimony whereof we have hereunto set our hands.

SAUSON M. RODGERS.  
EDWARD SCOTT.

Witnesses:

C. M. CLARKE,  
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