

No. 773,662.

PATENTED NOV. 1, 1904.

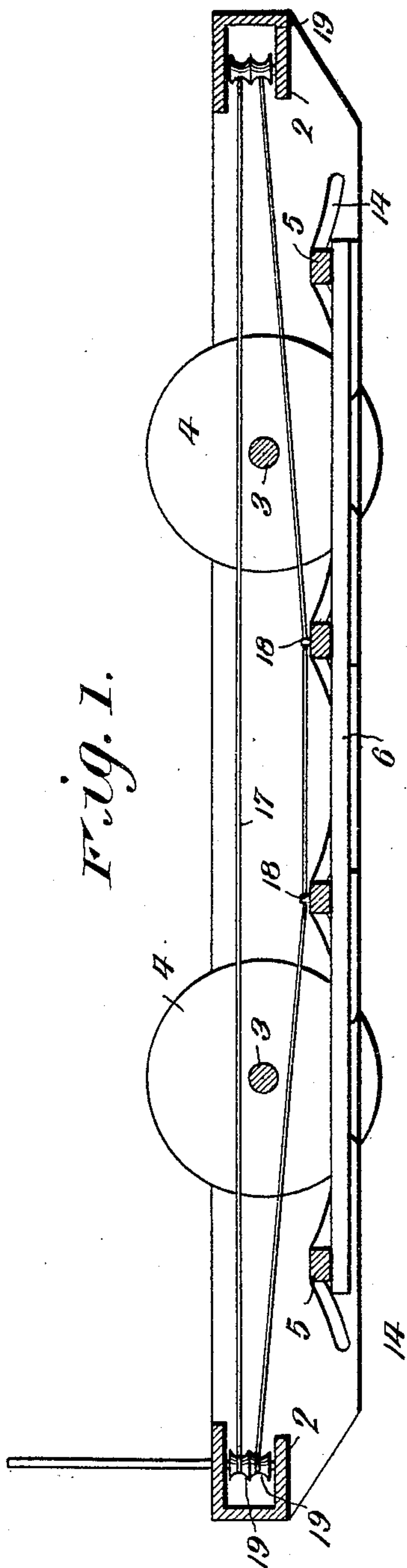
G. H. MARKILLIE & J. L. CRISLER.

BRAKE.

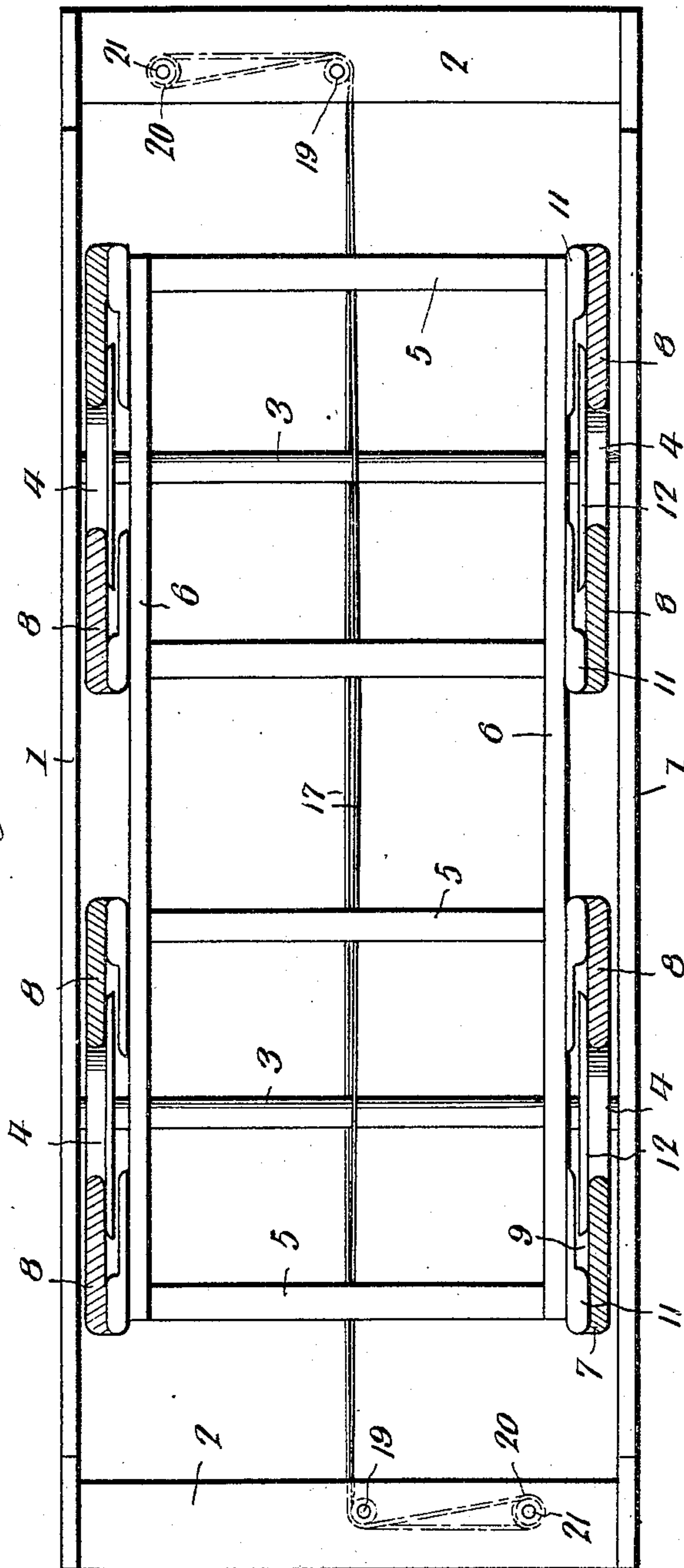
APPLICATION FILED MAR. 8, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
J. W. Remy
E. L. McKee



Inventors
George H. Markillie,
Joseph L. Crisler.

By *Rexford M. Smith*
Attorney

No. 773,662.

PATENTED NOV. 1, 1904.

G. H. MARKILLIE & J. L. CRISLER.

BRAKE.

APPLICATION FILED MAR. 8, 1904.

NO MODEL.

2 SHEETS—SHEET 2.

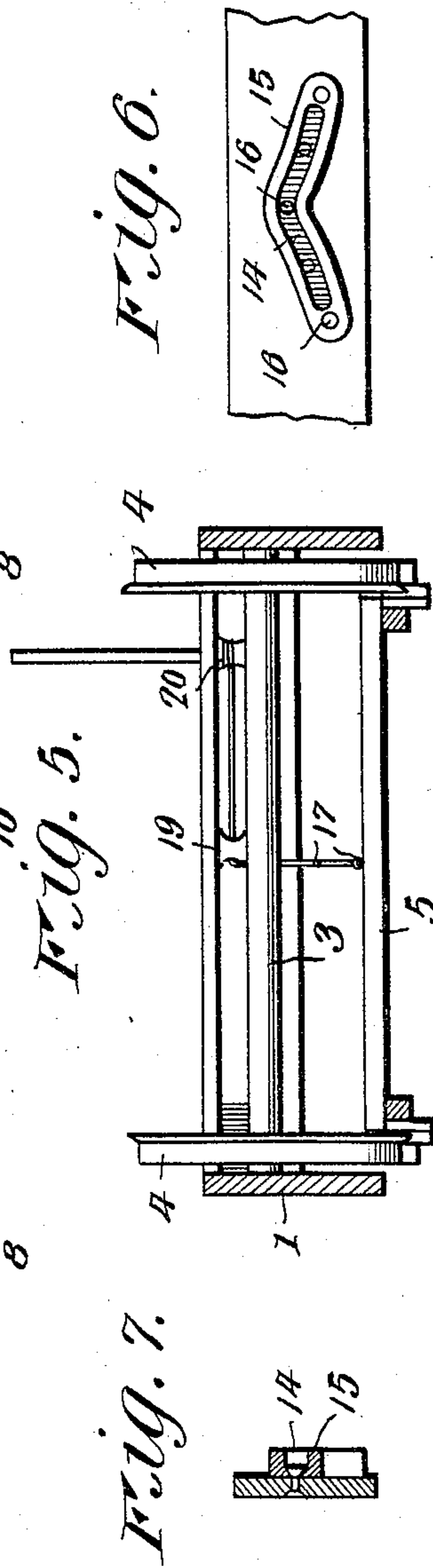
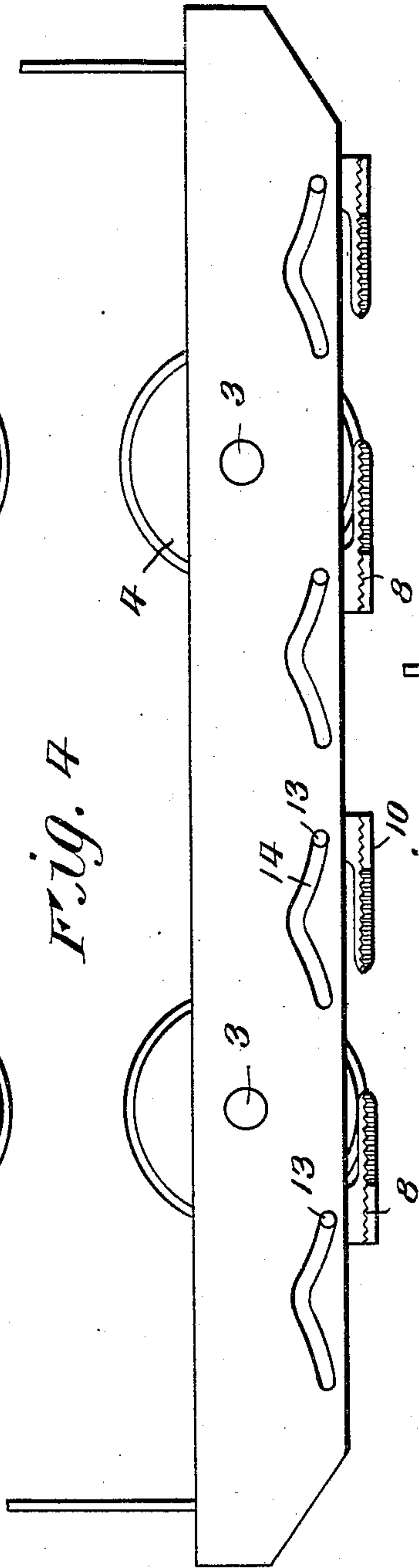
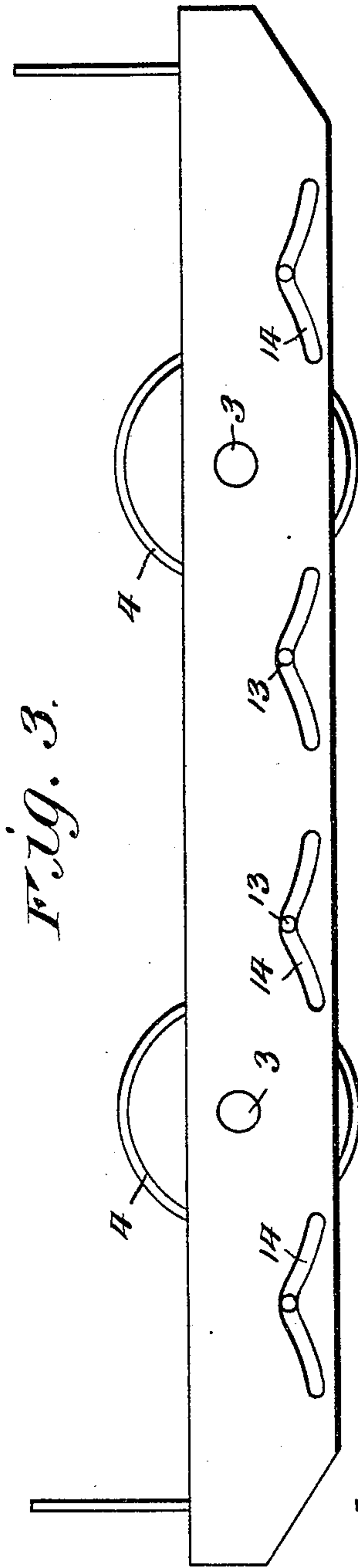
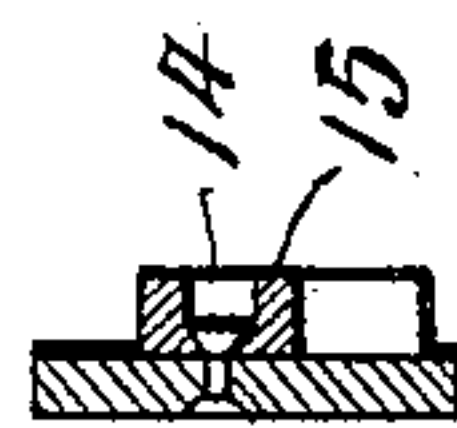
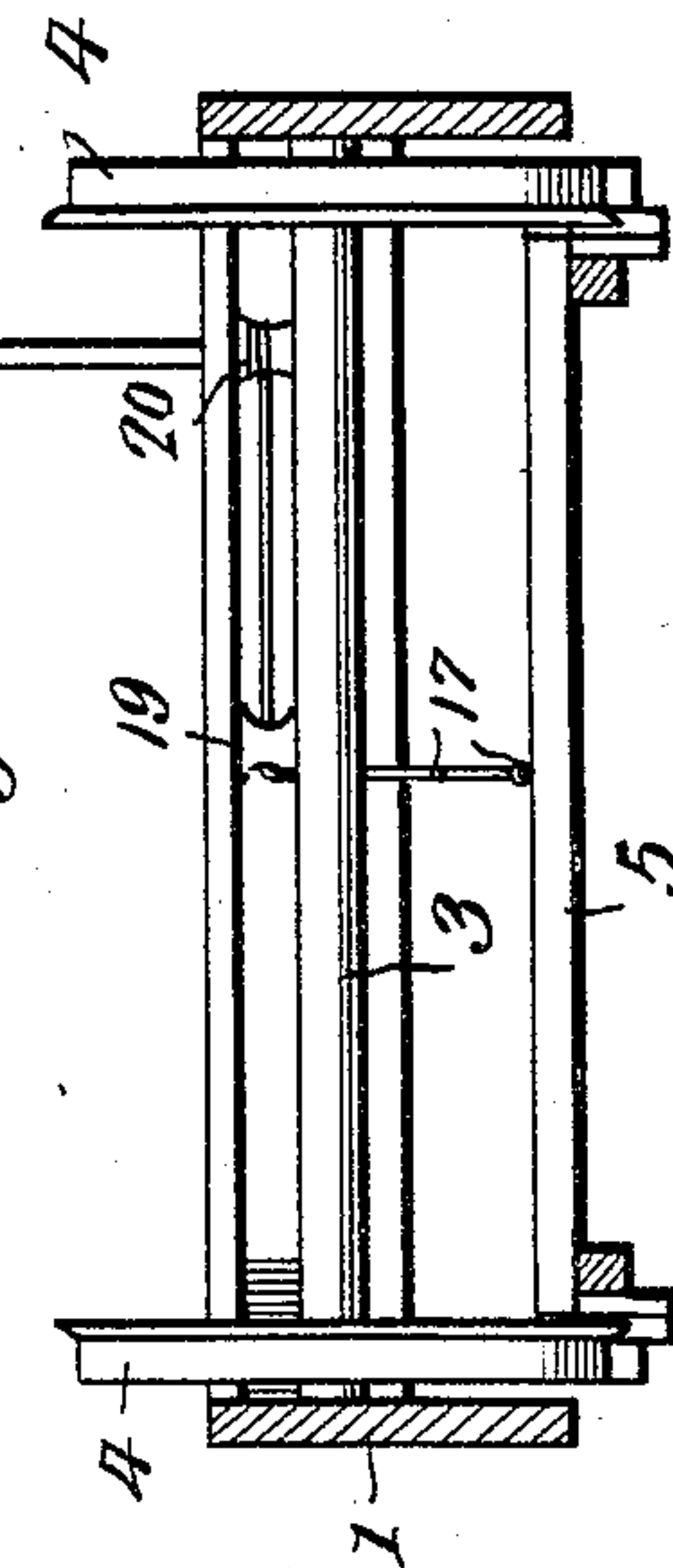
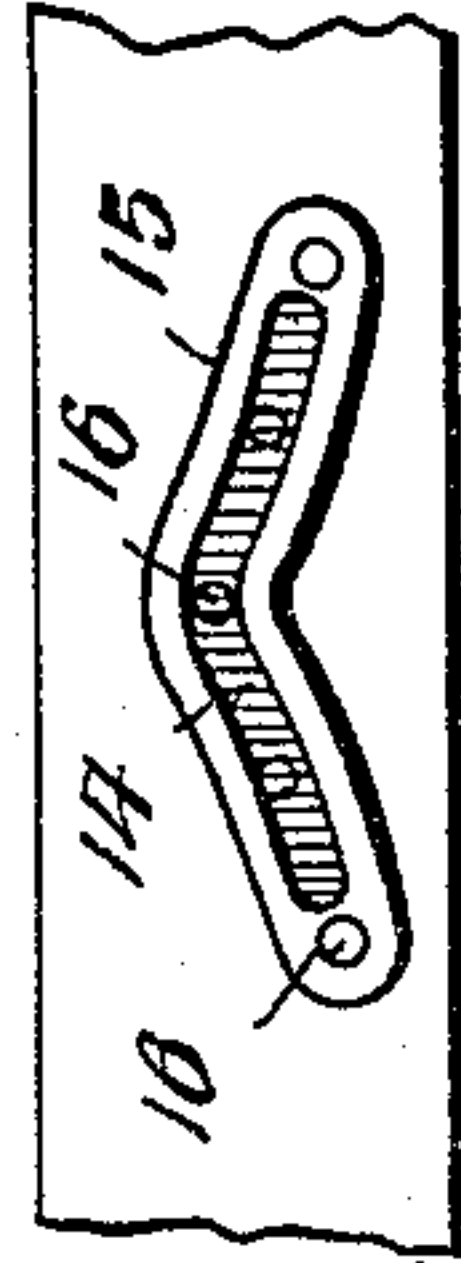


Fig. 6.



Witnesses

J. W. C. C.
E. G. McKee

George H. Markillie
Joseph L. Crisler.

334

Perford M. Smith.
Attorney

UNITED STATES PATENT OFFICE.

GEORGE H. MARKILLIE AND JOSEPH L. CRISLER, OF PERTH, KANSAS.

BRAKE.

SPECIFICATION forming part of Letters Patent No. 773,662, dated November 1, 1904.

Application filed March 8, 1904. Serial No. 197,120. (No model.)

To all whom it may concern:

Be it known that we, GEORGE H. MARKILLIE and JOSEPH L. CRISLER, citizens of the United States of America, residing at Perth, in the county of Sumner and State of Kansas, have invented a certain new and useful Brake, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to brakes, the object of the invention being to provide a brake especially designed for use on street-railway cars.

The brake hereinafter described is especially adapted for use as an emergency-brake to be employed in connection with the usual brake mechanism now in vogue and to be used as supplemental thereto when emergency requires the car to be stopped within a short distance.

The brake mechanism embodied in this invention comprises a plurality of sets of brake-shoes or what are known in the art as "chock-blocks," which are adapted to be simultaneously thrown into engagement with the wheels and between the wheels and the rails, bringing the wheels to a standstill and, in effect, placing the car as a whole upon friction-runners, which slide upon and in contact with the rails until the car is brought to a stop.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination, and arrangement of parts, as herein fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a longitudinal section through a car-truck, showing the brake mechanism embodying the present invention. Fig. 2 is a bottom plan view of the same. Fig. 3 is a side elevation thereof, with the shoes or chock-blocks elevated and out of operation. Fig. 4 is a similar view showing the chock-blocks depressed and in engagement with the wheels. Fig. 5 is a cross-section through the truck. Fig. 6 is a detail elevation showing one of the double inclined guides, and Fig. 7 is a vertical cross-section through the same.

Like reference-numerals designate corre-

sponding parts in all the figures of the drawings.

Referring to the drawings, we have therein illustrated a truck-frame consisting of the longitudinal side bars 1 and the end cross-bars 2, which connect the same, while 3 designates the car-wheel axles, which are journaled in the truck-frame and which carry the truck-wheels 4, the said parts in general being of the usual construction and arrangement.

In carrying out the present invention resort is had to what may be termed an "oscillatory frame," which consists of a plurality of brake-beams 5, arranged in pairs at opposite sides of the axles 3 and all rigidly connected together by means of tie-bars 6, thus adapting all of the brake-beams to move simultaneously in a direction lengthwise of the car-truck.

Each brake-beam 5 is provided near its opposite ends with brake-shoes 7, and it will be observed that two of such brake-shoes are employed for each wheel, the said shoes being arranged at opposite sides of the wheel, so that as the oscillatory frame is moved in one direction or the other the shoes at one side will be forced into engagement with the wheels. In this way braking power is applied to each and every wheel of the truck simultaneously.

Each brake-shoe is in the form of a chock-block, being somewhat wedge-shaped or provided with a portion which is adapted to be thrown beneath the tread of the wheel and between the wheel and the rail. By preference the bottom surface of the block, which comes in direct contact with the rail, is toothed or roughened, as shown at 8, so as to add to the frictional resistance of the shoe or block on the rail. It will also be observed by reference to Fig. 2 that each shoe or block is slotted or bifurcated, as shown at 9, to receive the flange of the wheel, and at one side of the slot or bifurcation the shoe or block is made deeper than the other in order to provide a flange or guard 10 for the purpose of engaging the rail when the wheel is lifted and the wheel-flange thereby elevated to such an extent as to disengage it from the rail and render the car subject to derailment. The flange

10 is extended laterally to form a shoulder 11, which, as shown in Fig. 2, is in line with the inner bearing-surface of the wheel-flange 12. Therefore when the wheel is raised out of engagement with the track the shoulder 11 of each shoe or block engages the rail the same as the flange 12, and in this way the derailment of the car is prevented during the application of the emergency-brake.

As previously stated, each brake-beam is provided with two brake shoes or blocks, and the beam is also provided with end studs or pintles 13, which move in guides or guideways 14, either formed in the longitudinal side bars 1 of the truck-frame or in separately formed and attachable plates 15 (illustrated in detail in Figs. 6 and 7) and adapted to be secured, by means of suitable fasteners 16, to the truck-frame at suitable points. It will be seen that the guideways or guides are doubly inclined, or, more accurately speaking, said guides comprise reversely-inclined portions which extend obliquely upward from their outer toward their inner meeting ends, the central portion of each guide being, therefore, at a higher elevation than the end portions of the same.

When the brake is not in use, the studs or pintles 13 occupy the highest portions of the guides, as shown in Fig. 3, in which position the chock-blocks or shoes are out of engagement with both the wheels and rails. When, however, the frame carrying the chock-blocks is moved in one direction or the other, the studs or pintles move downward in the guideways, and thus the chock-blocks at one side of the wheel are moved into engagement with the wheel and forced between the wheel and the rail in the manner illustrated in Fig. 4. As all of the brake-beams and chock-blocks are connected to and movable with and by means of a single rigid frame, it is only necessary to provide means for moving said frame in one direction or the other.

Any desired mechanism may be employed for moving the block-carrying frame in opposite directions; but for convenience of illustration we have shown said means as consisting of a flexible brake connection 17, attached at 18 to the oscillatory frame and passing in both directions therefrom toward the ends of the truck around guide-pulleys 19 and thence to and around pulleys 20 on the lower ends of brake-staffs 21, by means of which the flexible connection 17 may be wound upon one or the other of said staffs. In this way the oscillatory frame may be moved longitudinally of the truck in one direction or the other, the movement of said frame being effected in such a way as to bring the shoes or blocks which lie in advance of the wheels into engagement with said wheels, as in this way the wheels themselves assist in forcing the chock-blocks beneath them and between them and the rails, the wheels thus riding

upon the blocks and forcing the latter with a pressure equal to the weight of the car and its load into frictional engagement with the rails. It will be seen that two sets of chock-blocks are employed for each set of wheels, this being done in order that a complete set of blocks may be used while the car is moving in either direction. In whichever direction the car is moving the blocks immediately in front of the wheels are used for braking purposes.

While the brake has been described as an emergency-brake, it will of course be understood that said brake mechanism may be put to the ordinary use, all other brake mechanism being dispensed with.

Having thus described the invention, what is claimed as new is—

1. A brake comprising an oscillatory frame, chock-blocks thereon located at opposite sides of the wheels, means for oscillating the frame so as to force the chock-blocks toward the wheels, and stationary guides which act to direct the chock-blocks between the wheels and rails.

2. A brake comprising a plurality of brake-beams, tie-bars rigidly connecting the brake-beams, chock-blocks carried by the beams and located at opposite sides of the wheels, means for moving the brake-beams and tie-bars at right angles to the axis of the wheels, and double inclined guides which engage the brake-beams and direct the chock-blocks between the wheels and rails.

3. A brake comprising a plurality of brake-beams, tie-bars rigidly connecting the brake-beams, chock-blocks carried by the beams and located at opposite sides of the wheels, means for moving the brake-beams and tie-bars at right angles to the axis of the wheels, and double inclined guides which engage the brake-beams and operate to raise and lower said beams as they are moved in one direction or the other, substantially as and for the purpose described.

4. The combination with a car-truck embodying a plurality of axles and wheels, of a brake comprising a pair of brake-beams for each axle and set of wheels, tie-bars rigidly connecting all of the brake-beams for simultaneous movement, a pair of chock-blocks for each wheel, said blocks being carried by the beams and located at opposite sides of the wheels, means for moving the brake-beams and tie-bars at right angles to the axis of the wheels, and double inclined guides which engage the brake-beams and direct the chock-blocks between the wheels and rails.

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

GEORGE H. MARKILLIE.
JOSEPH L. CRISLER.

Witnesses:

B. T. WIMER,
F. E. CARR.