(No Model.) 2 Sheets—Sheet 1.

A. POWERS & V. FURSTENFELD.

WAGON BRAKE.

No. 560,069. Patented May 12, 1896.

Fig. 1.

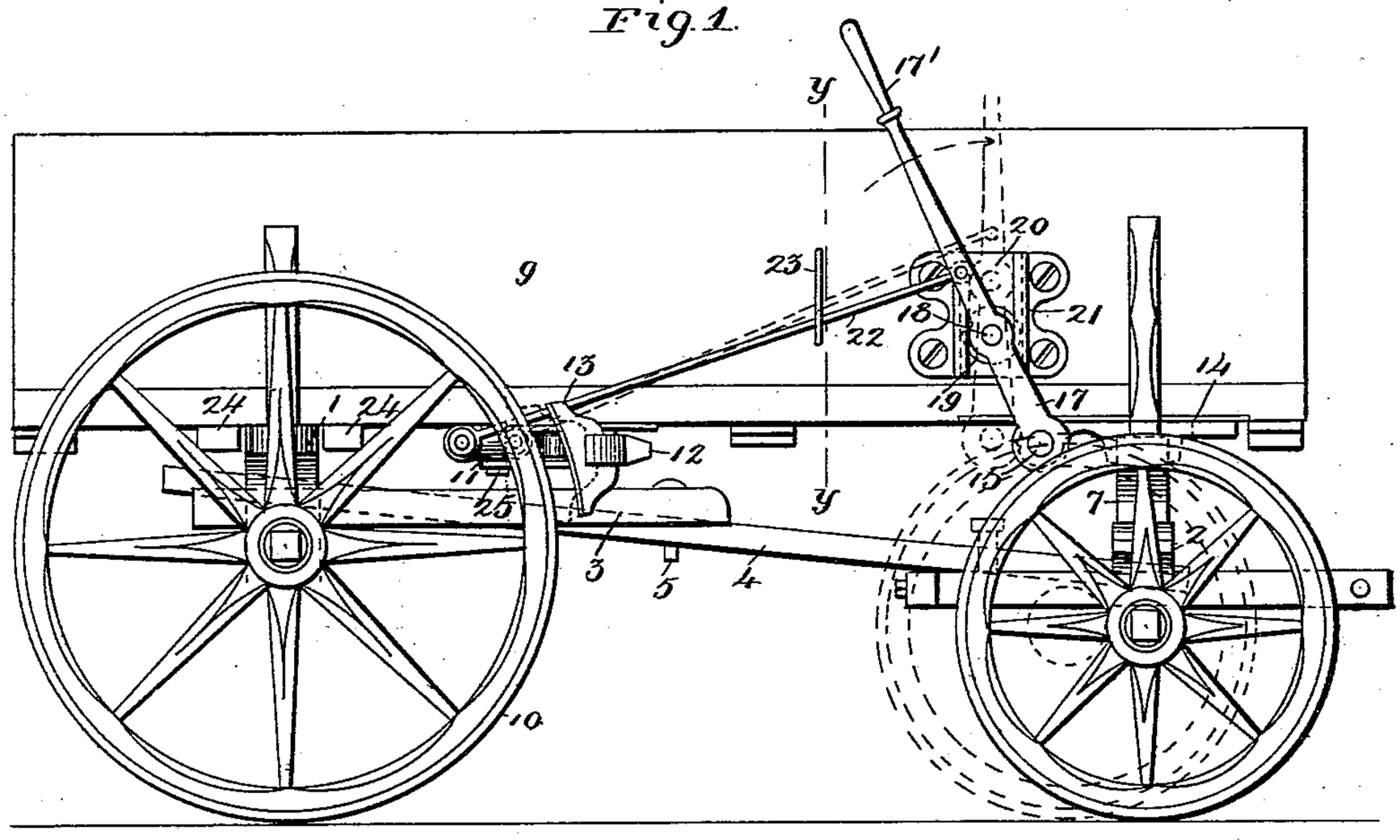
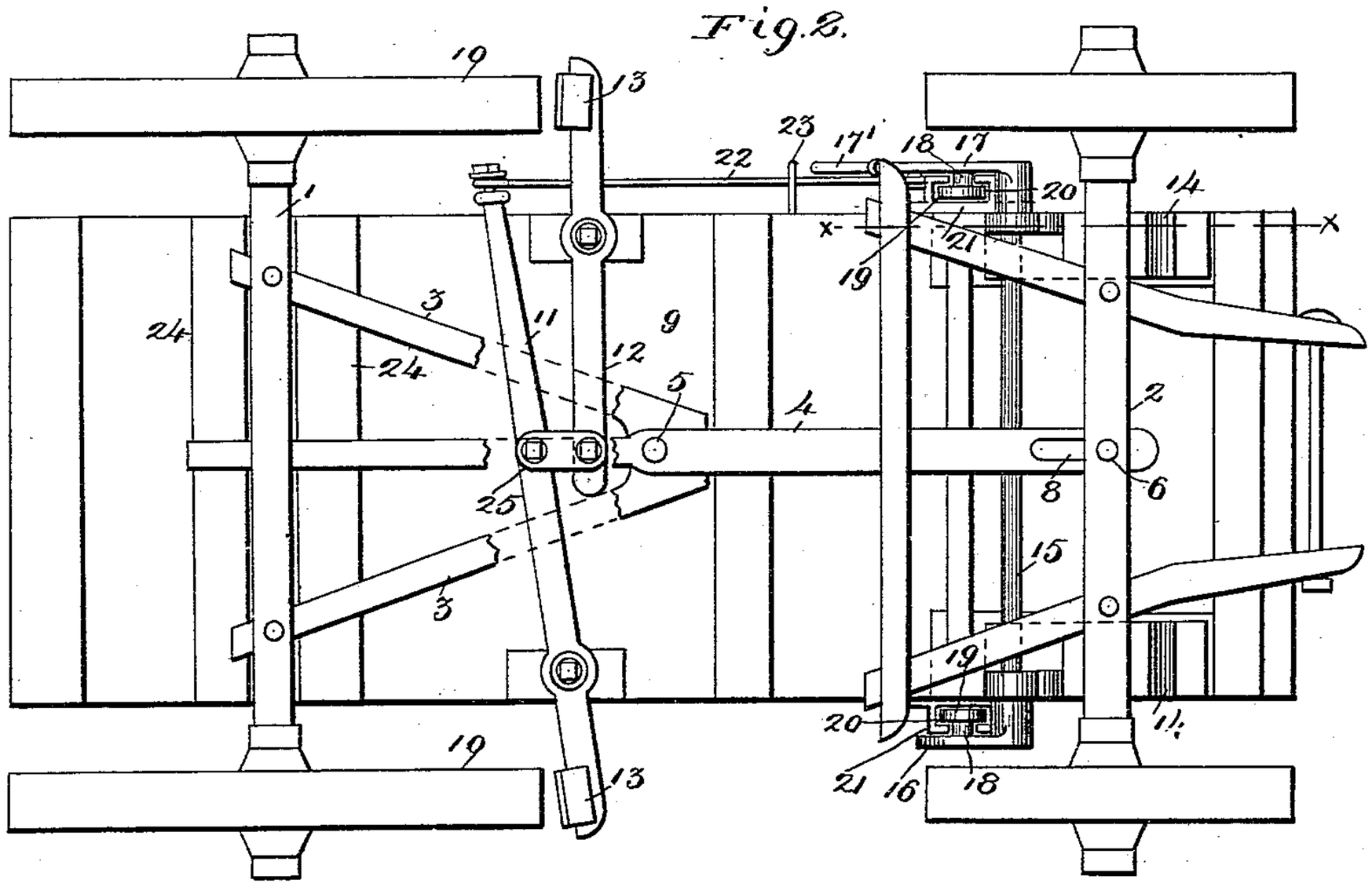


Fig. 2.



Witnesses,
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Frank Wells

Inventors.
A. Powers, and
V. Furstenfeld.
By their Attorneys,
Keller Stuck

(No Model.) 2 Sheets—Sheet 2.

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WAGON BRAKE.

No. 560,069. Patented May 12, 1896.

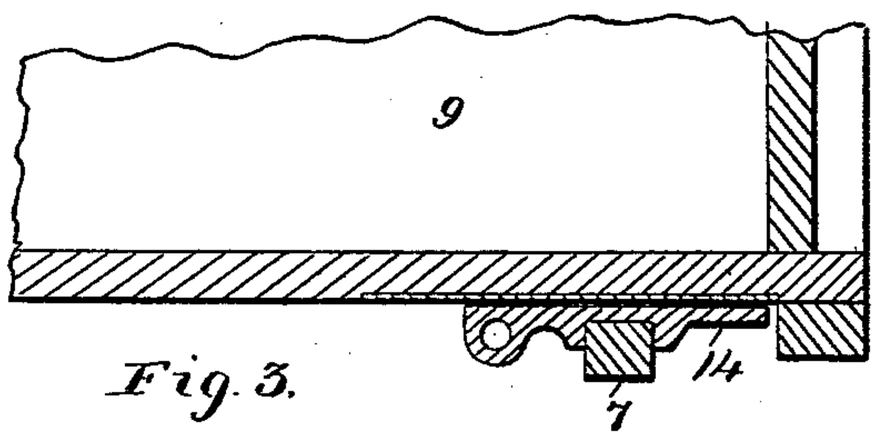

Fig. 3.

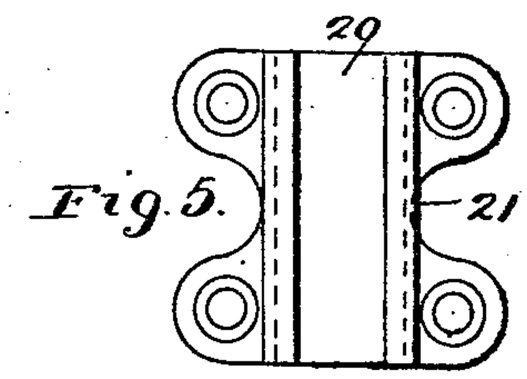

Fig. 5.

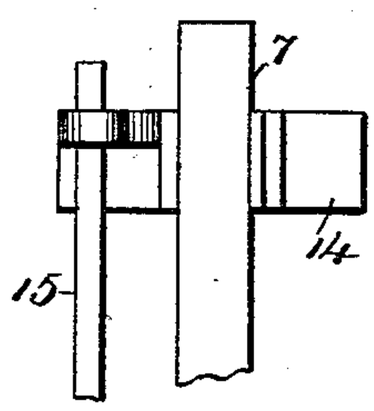

Fig. 4.

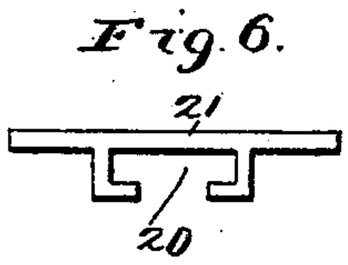

Fig. 6.

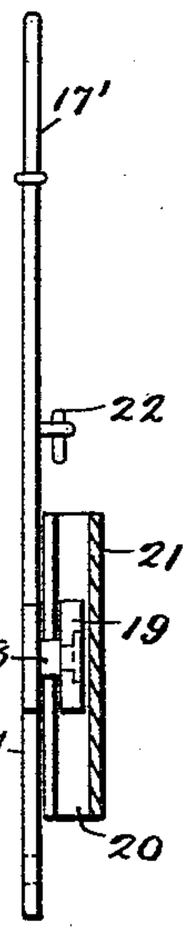

Fig. 7.

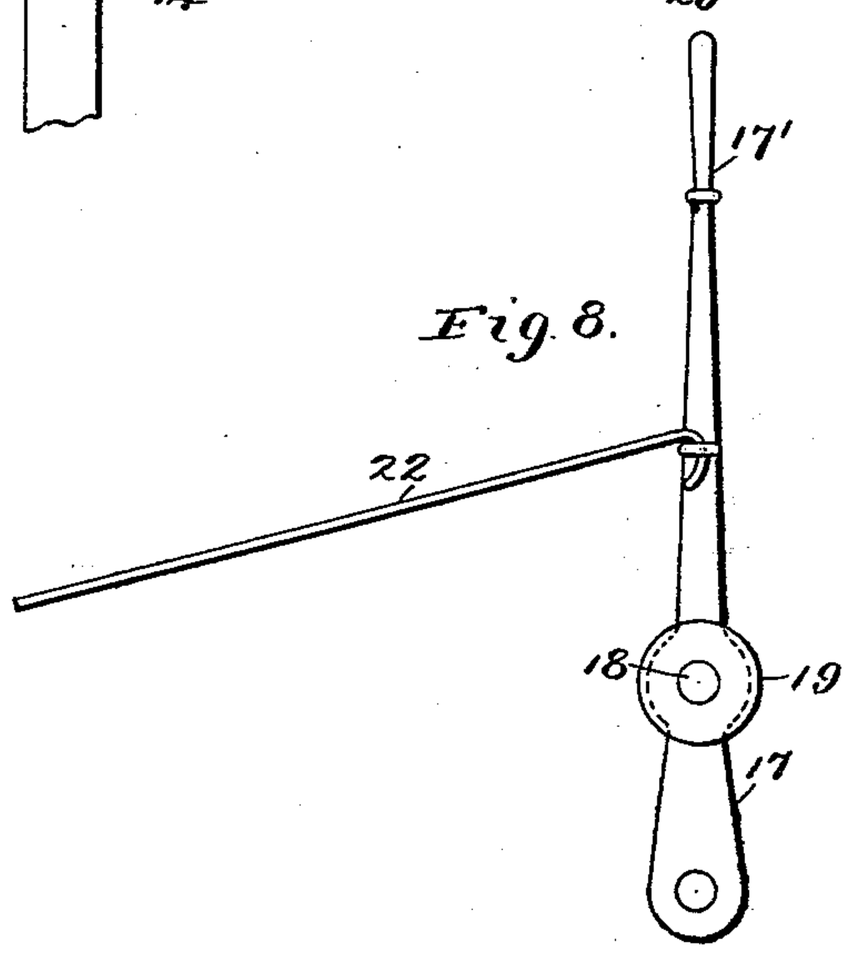

Fig. 8.

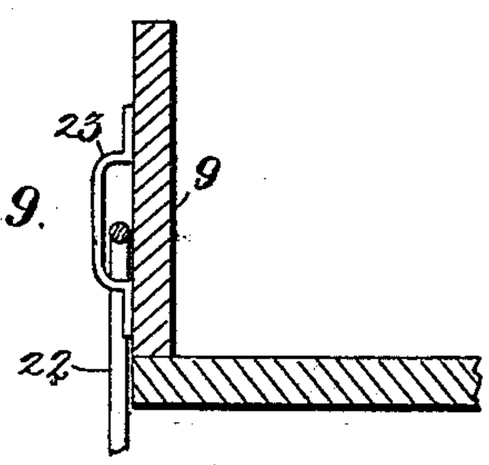

Fig. 9.

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UNITED STATES PATENT OFFICE.

ALBERT POWERS AND VALENTINE FURSTENFELD, OF ST. LOUIS, MISSOURI.

WAGON-BRAKE.

SPECIFICATION forming part of Letters Patent No. 560,069, dated May 12, 1896.

Application filed January 22, 1896. Serial No. 576,426. (No model.)

To all whom it may concern:

Be it known that we, ALBERT POWERS and VALENTINE FURSTENFELD, citizens of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Wagon-Brakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention has relation to improvements in automatic wagon-brakes; and it consists in the novel arrangement and combination of parts more fully set forth in the specification, and pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a wagon having our invention attached. Fig. 2 is a bottom view of the wagon with the invention attached. Fig. 3 is a detail section taken on the line *x x* of Fig. 2. Fig. 4 is a bottom plan view of one end of the bolster, showing the end of the rock-shaft carried by the terminal plate of said bolster. Fig. 5 is an elevation of one of the guide-plates carried by the side of the wagon-box. Fig. 6 is a top plan view of the same. Fig. 7 is a rear end view of the controlling-lever of the brake, showing the guide-plate with whose guideway it coöperates in section. Fig. 8 is an elevation of the same controlling-lever, and Fig. 9 is a detail on the section-line *y y* of Fig. 1.

The object of our invention is to construct a wagon-brake which will automatically apply the brakes when the wagon descends an incline, and one wherein the driver can apply the brakes at will when the wagon is traveling on a level or upgrade. To this end we have devised a brake which in detail can be described as follows:

Referring to the drawings, 1 represents the rear truck, and 2 the front truck, of the wagon, the triangular frame 3 forming a part of the rear truck. Connecting the rear and front truck is the coupling-pole 4, which is rigidly secured to the frame 3 by a pin 5, the rear end of the coupling-pole extending backward and resting on the rear truck. The forward end of the coupling-pole is slotted, the connection between the pole and front truck being effected by passing the king-bolt 6, which secures the bolster 7 to the front truck, through the slot 8 of said coupling-pole. By this arrangement the amount of play between the trucks—that is, the distance they may be made to approach and recede from one another—is equal to the full length of the slot, the trucks being farthest apart when the wagon is being driven on a level or up an incline, and the rear truck following up the front truck when the wagon is descending an incline. Pivoted along the bottom of the wagon-box 9, adjacent to the sides thereof and at points directly in front of the wheels 10 of the rear truck, are the brake-levers 11 12, the long arm of the lever 11 overlapping the long arm of the lever 12 and projecting beyond the side of the wagon at which the lever 12 is pivoted. The outer end of each brake-lever has secured thereto the brake-shoes 13 13. Forming part of the bolster 7, and secured at each end thereof, are supporting castings or plates 14, on which the front of the wagon-box directly rests and over which it is free to slide, and mounted between and carried by said castings and extending parallel to the bolster is a rock-shaft 15, to the outer projecting ends of which are secured the arms 16 17, the latter being extended so as to form an operating or controlling lever 17′. The inner face of each arm 16 17 carries a pin 18, on which is mounted an antifriction-roller 19, adapted to operate in the guideway 20 of a guide-plate 21, carried by or secured to the sides of the wagon-box along a line a little to the rear of the line of the rock-shaft 15. Connecting the free end of the long arm of the brake-lever 11 with the controlling extension 17′ of the arm 17 and at a point slightly above the pin 18 is a connecting-rod 22, guided, preferably, by a loop or staple 23, secured on the outside of the wagon-box. The box is rigidly secured to the rear truck by the parallel pieces or beams 24 24, embracing the cross member of said truck, the forward end of the said wagon-box simply resting on the bearing-plates 14 of the bolster. The free end of the long arm of the brake-lever 12 is connected pivotally to the long arm of the lever 11 by means of a link 25. (See Fig. 2.)

The operation is as follows: When the wagon is descending an incline, (the front truck under those circumstances being held back by the draft-animals,) the rear truck will follow up the front truck an amount equal to the play between the two trucks—that is,

the length of the slot 8—the relative positions of the trucks being indicated by the dotted lines in Fig. 1—that is, the pivotal line of the arms 16 17 will come nearer directly under the guideways 20 of the plates 21, thereby causing said arms to assume an approximately vertical position, the extension 17′ under these circumstances drawing forward the rod 22, whereby the brake-levers will be swung simultaneously about their pivotal points and the brake-shoes at their free ends simultaneously brought against the wheels 10. Should the driver wish to apply the brakes while driving on a level, or even upgrade, he can simply tilt the controlling-lever 17′ in the direction indicated by the arrow in Fig. 1, thereby rocking the shaft 15 in its bearings and causing the arms 16 17 to simultaneously assume an approximately vertical position, thus bringing the parts into a relation similar to that already indicated, and thus apply the brakes. The rubbing-surfaces between the plates 14 and the under side of the wagon-box should be kept well greased to reduce the friction between the parts to a minimum.

Having described our invention, what we claim is—

1. In a wagon-brake, suitable rear and front trucks, a coupling-pole connecting said trucks, a slotted connection between said pole and the front truck, a rock-shaft pivoted to the forward truck, suitable arms carried at each end of the rock-shaft, a wagon-box rigidly secured to the rear truck and movably resting on the front truck, guideways carried by the wagon-box for the free ends of the pivoted arms, an extension forming a continuation of one of the said pivoted arms, suitable brake-levers, and a connection between the brake-levers and the extension of the pivoted arm, substantially as set forth.

2. In a wagon-brake, suitable rear and front trucks, a coupling-pole connecting said trucks, a slotted connection between said pole and the front truck, a wagon-box rigidly secured to the rear truck and resting movably on the front truck, bearing-plates carried at opposite ends of the bolster of the front truck for the support of the front end of the wagon-box, a rock-shaft mounted in said plates, arms carried at the opposite ends of the rock-shaft, antifriction-rollers carried at the free ends of said arms, guide-plates for the reception of the antifriction-rollers secured to the sides of the wagon-box a little to the rear of the line of the rock-shaft, an extension forming a continuation of one of said pivoted arms and forming a controlling-lever for the brake, brake-levers pivoted on the under side of the wagon-box, the long arm of one lever overlapping the long arm of the other lever, a connecting-link pivotally connecting the free end of the long arm of the shorter brake-lever with the long arm of the longer brake-lever, and a connecting-rod between the free end of the long arm of the longer brake-lever and the controlling extension of one of the pivoted arms, substantially as set forth.

3. In a wagon-brake, suitable rear and front trucks, a coupling-pole for the same, a slotted connection between the pole and the front truck, a rock-shaft pivoted to the forward truck, suitable arms carried at each end of the rock-shaft, a wagon-box rigidly secured to the rear truck and movably resting on the front truck, guideways carried by the wagon-box for guiding the free ends of the pivoted arms, suitable brake-levers pivoted to the bottom of the wagon-box, and connections between the brake-levers and the pivoted arms, substantially as set forth.

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

ALBERT POWERS.
VALENTINE FURSTENFELD.

Witnesses:
ALFRED A. MATHEY,
E. STAREK.