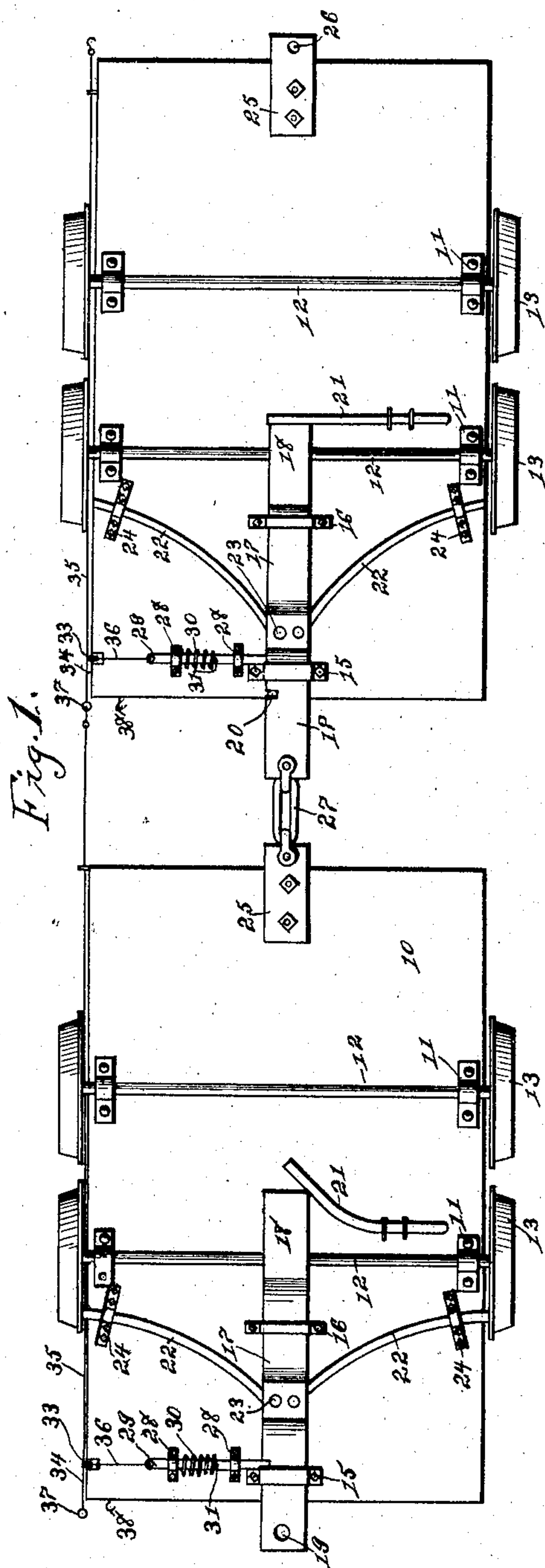


No. 780.666.

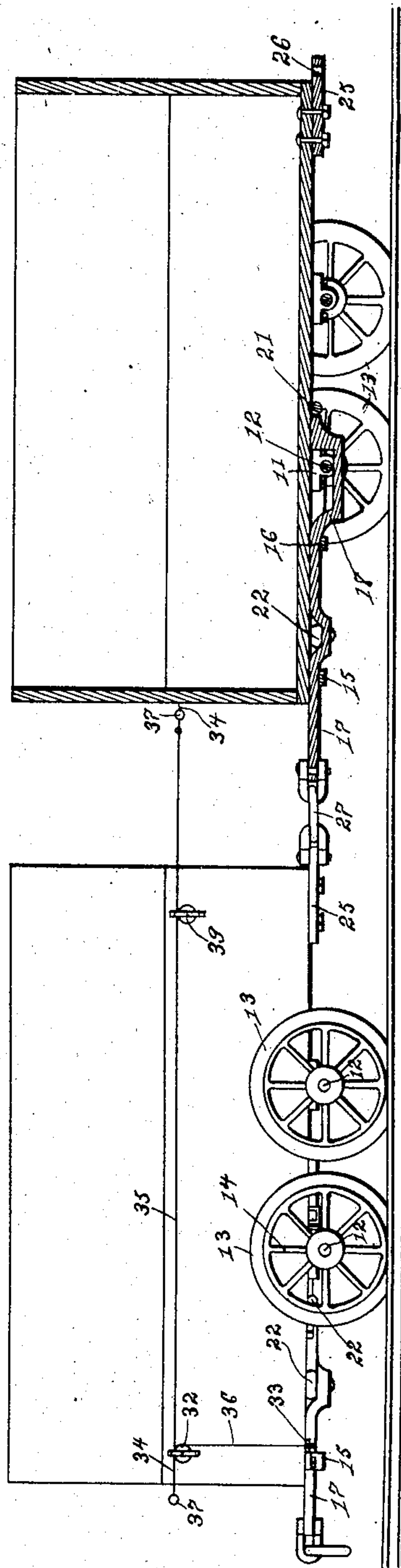
PATENTED JAN. 24, 1905.

C. F. KELSO.  
MINING CAR BRAKE.  
APPLICATION FILED MAR. 1, 1904.

2 SHEETS—SHEET 1.



*Fig. 2.*



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2 SHEETS—SHEET 2.

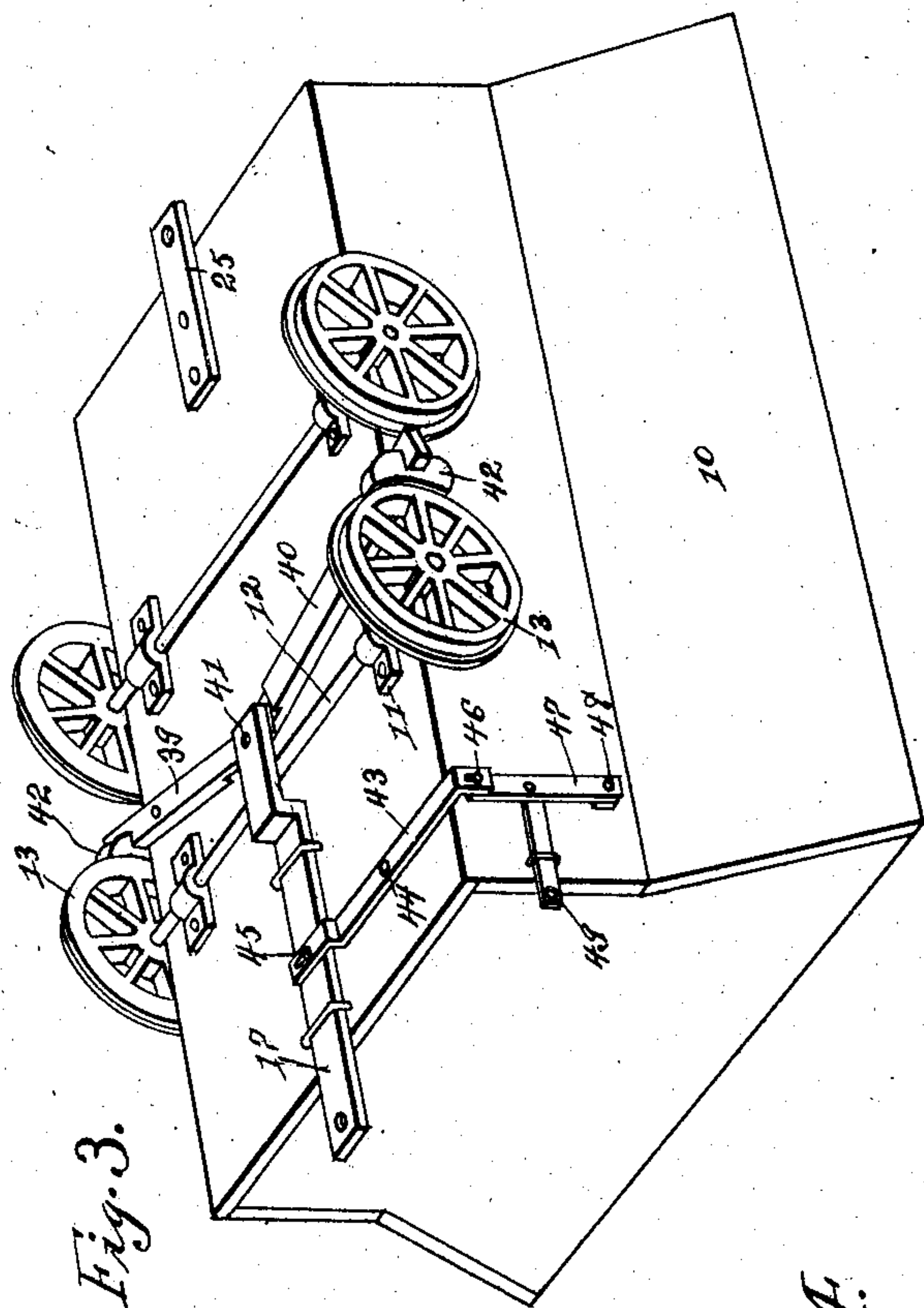


Fig. 3.

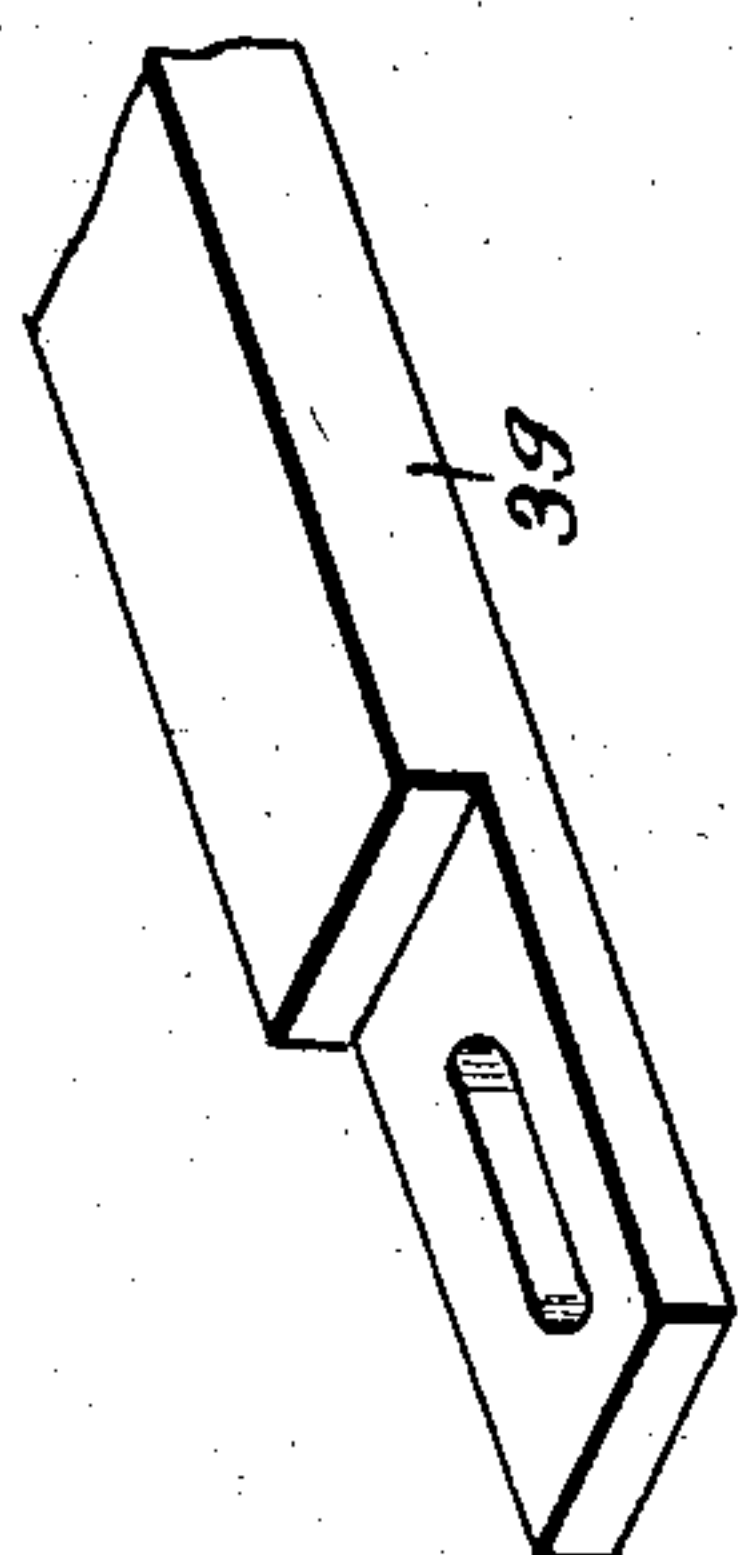
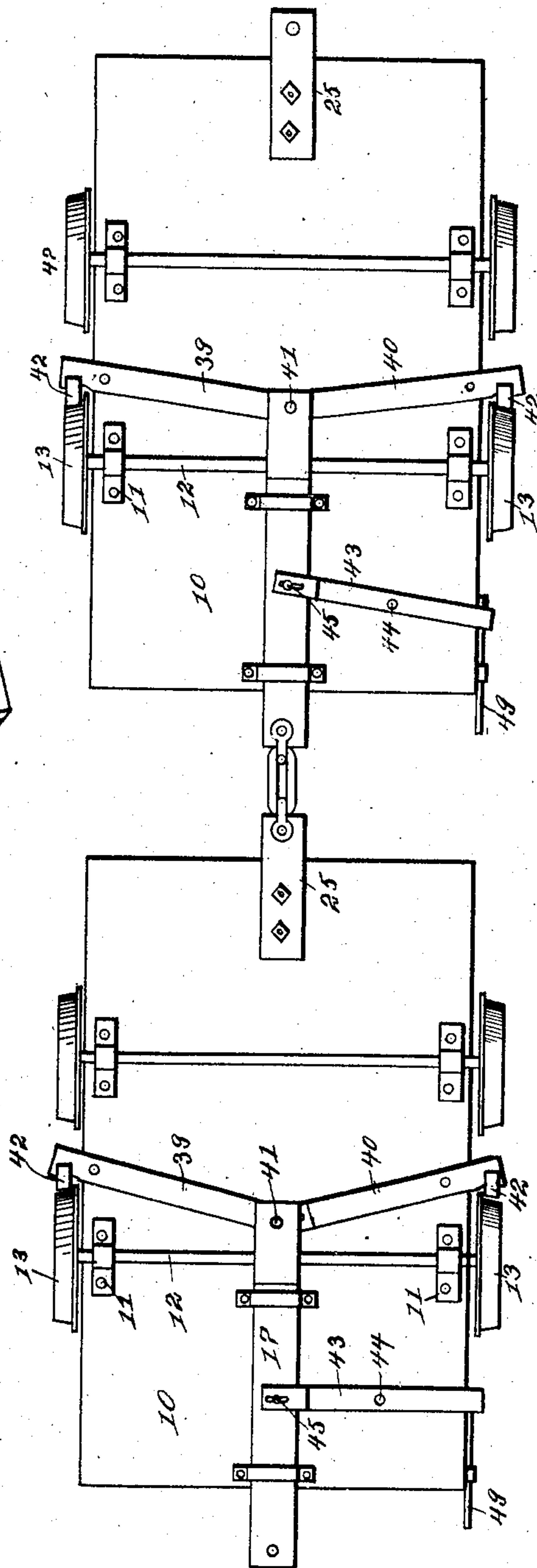


Fig. 5.

Fig. 4.



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# UNITED STATES PATENT OFFICE.

CHILTON F. KELSO, OF DES MOINES, IOWA, ASSIGNOR TO SPURRIER  
FORBES & MILLS AND E. L. FORBES, OF DES MOINES, IOWA.

## MINING-CAR BRAKE.

SPECIFICATION forming part of Letters Patent No. 780,666, dated January 24, 1905.

Application filed March 1, 1904. Serial No. 196,065.

*To all whom it may concern:*

Be it known that I, CHILTON F. KELSO, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented certain new and useful Improvements in Mining-Car Brakes, of which the following is a specification.

The objects of my invention are to provide a brake of simple, durable, and inexpensive construction especially designed for use in connection with mining-cars and so arranged that when a number of mining-cars are coupled together and the front car is retarded on a downgrade the draw-bars of the remaining cars will be forced rearwardly by the impact of said remaining cars upon each other and this rearward movement of the draw-bars will automatically set brakes applied to the car-wheels and said brakes will be automatically released when the cars in front are advanced and the draw-bars moved forwardly relative to the cars.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows an inverted plan view of two mining-cars coupled together and having my improved brake attachment applied thereto, the brake on the forward car shown in position engaging the wheels and the brake on the rear car shown in position away from the wheels. Fig. 2 shows two cars coupled together, the front one in side elevation and the rear one in central longitudinal section, said cars having my improved brakes attached thereto. Fig. 3 shows a perspective view of an inverted mine-car provided with a modified form of my improved brake. Fig. 4 shows an inverted plan view of two mine-cars coupled together and provided with the modified form of brake with the brake-shoes on the front car away from the wheels and those on the rear car in engagement with the wheels, and Fig. 5 shows a detail perspective view of the inner end of one of the brake-levers of the modification.

Referring to the accompanying drawings, the numeral 10 is used to indicate the car-body. On the under surface of the car-body are two pairs of bars 11, having mounted therein the axles 12, and on the ends of the axles are the car-wheels 13, said wheels having spokes 14. Fixed to the under surface of the car-body, near its forward end are two brackets 15 and 16, and in these brackets is a draw-bar 17 capable of moving longitudinally. This draw-bar is provided with a downwardly-projecting portion at 18, arranged to admit the front axle 12, and the said downwardly-inclined portion limits the forward movement of the draw-bar by engaging the bracket 16. At the front of the draw-bar is a pin-opening 19 by which the draw-bar may be coupled to another car, and in one side of the draw-bar, near its forward end, is a notch 20 for purposes hereinafter made clear. I have provided a spring 21, fixed to the under surface of the car near one end, with its free end engaging the rear end of the draw-bar 17, said spring normally holding the draw-bar to its forward limit of movement. Two slide-bolts 22 are pivoted at 23 to the draw-bar 17 and extend outwardly and rearwardly through the brackets 24 to a point adjacent to the front wheels 13. These bolts 22 are of sufficient size and shape that when the draw-bar 17 is moved to its rearward limit the said slide-bolts project outwardly between the spokes of the wheels 13, thus locking said wheels against rotation, and when the draw-bar 17 is moved forwardly the bolts 22 are withdrawn from between the spokes, as shown in the rear car of Fig. 1. Attached to the rear end of each car is a stationary draw-bar 25, having an opening 26 to receive a pin. A coupling device 27 is provided for connecting the draw-bar 25 with the draw-bar 17 of an adjacent car. I have also provided means by which the draw-bars 17 may be locked at their rearward limit of movement as follows: On the bottom of the car near the notch 20 of the draw-bar 17 are the brackets 28, in which a slide-bolt 29 is mounted to move at right angles to the draw-bar 17. Mounted on the slide-bar 29 is an extensile coil-spring 30, one end engaging the outer bracket 28 and the



other end engaging a pin 31 in the slide-bolt, said spring normally holding the slide-bolt at its inward limit of movement. Hence when the draw-bar 17 is at its rearward limit of movement the slide-bolt 29 will enter the notch 20 and lock the draw-bar in said position. I have provided means for simultaneously withdrawing all of the slide-bolts 29 as follows: Near the forward end of each car and on one side thereof is a direction-pulley 32, and below this direction-pulley, at the corner of the car, is a second pulley 33. A wire 34 passes over the pulley 32, and one branch, 35, thereof extends rearwardly along the side of the car, and the other branch, 36, extends downwardly over the pulley 33 and then inwardly to the end of the slide-bolt 29, to which it is attached. At the end of the wire 34 is a loop 37 to form a handle by which the wire may be grasped and also to engage a hook 38 at the front of the car. At the rear of the car is a pulley 39, over which the branch wire 35 passes. This branch 35 is attached to the loop 37 of a second car, and in this way a pull upon the wire 34 will withdraw the bolts 29 of all of the cars that are connected. In practical use with this form of my invention it is obvious that so long as the cars are running on a level track or running uphill and draft is applied to the draw-bars 17 then the bolts 22 will be held in their withdrawn position and the cars may freely move over the track. Assuming, however, that the cars are running on a downgrade, then the draw-bar 17 on the front car is pushed rearwardly against the pressure of the spring 21 either by the draft-animals or by the driver. This may easily be done, because only a slight pressure is required to move the draw-bar rearwardly. This will have the effect of stopping the front wheels on the front car, and the next car in the rear will then move forwardly, and the draw-bar of the second car will strike against the stationary draw-bar of the first car, and thus move the second draw-bar rearwardly and apply a brake to the second car, and so on. The draw-bars 17 will be locked by the bolts 29 at their rearward limit of movement. Hence in order to withdraw the bolts 22 it is necessary for the operator to pull upon the wire 34, thus releasing the draw-bars. Then when the draft-animals again pull forwardly upon the forward draw-bar the brakes on the front car are withdrawn, and when the front car moves forwardly the second draw-bar slides forwardly and the brakes on the second car are withdrawn.

In the modified form illustrated in Figs. 3 to 5, inclusive, the sliding draw-bar 17 is connected at its rear end with two levers 39 and 40. These levers are provided with slotted ends, as shown in Fig. 5, and a bolt 41 passes through the rear end of the draw-bar 17 and through the slots of the levers 39 and 40, providing a pivotal and sliding connection. The

said levers 39 and 40 are pivotally supported on the under surfaces of the car near their outer ends, and at the outer end of each lever is a brake-shoe 42 in position to engage the rim of the front wheel 13 when the draw-bar 17 is moved rearwardly. In this way a rearward movement of the draw-bar 17 will apply the brake-shoes 42 to the front car-wheels. In this connection I have provided means whereby the operator on the front car may readily and easily set the brakes on the front car as follows: The numeral 43 indicates a lever pivoted at 44 to the under surface of the car. This lever is pivotally and slidingly connected at 45 with the draw-bar 17. Its other end is pivotally and slidingly connected at 46 with a lever 47, which lever is fulcrumed at 48 to the side of the car, and a handle 49 is provided for the lever 47, which handle projects forwardly in front of the car. In use with this form of my invention the operator may readily set the brakes on the front car by pulling forwardly upon the handle 49. Then each car in the rear has its brakes automatically set by having the draw-bar thereof push against the stationary draw-bar at the rear of the car in front in the same manner as in my preferred form. In cases where the draft-animals are attached to the front draw-bar in such a manner that they can push rearwardly on the draw-bar the operator need not manipulate the handle 49. However, in cases where the draft-animals cannot hold back on the front draw-bar it is only necessary for the operator to set the brakes on the first car, whereupon all of the brakes on the other cars will be automatically set when said cars are running down an incline.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. The combination of two vehicles, a brake for the front vehicle, a bar at the rear of the front vehicle, a sliding bar at the front of the second vehicle, a coupler connecting said bars, and means connected with the sliding bar for retarding the wheels of the second car, said means actuated by a rearward movement of the sliding bar.

2. The combination with a mining-car, of a draw-bar slidingly mounted, means operated by a rearward movement of the draw-bar for retarding the car, a yielding pressure device normally holding the draw-bar to its forward limit, and means for automatically locking the draw-bar at its rearward limit of movement.

3. The combination of two mining-cars, a sliding draw-bar at the front of each, a stationary draw-bar at the rear of each, a coupler connecting the adjacent draw-bars, means attached to each sliding draw-bar for retarding the cars when the draw-bars are moved rearwardly, means for automatically locking the sliding draw-bars when at their rearward



limit of movement, and means for simultaneously releasing both of said locking devices.

4. The combination with a wheeled vehicle, of a longitudinally-movable draw-bar and bolts pivoted to the draw-bar, said bolts projecting outwardly through the wheels when the draw-bar is at its rearward limit of movement and withdrawn when the draw-bar is at its forward limit of movement.

5. The combination with a wheeled vehicle, of a longitudinally-movable draw-bar and bolts pivoted to the draw-bar, said bolts projecting outwardly through the wheels when the draw-bar is at its rearward limit of movement and withdrawn when the bar is at its forward limit of movement, and a spring normally holding the draw-bar to its forward limit of movement.

6. The combination with a mining-car, of a draw-bar slidably mounted on the mining-car, means for limiting the longitudinal movement of the draw-bar, bolts pivoted to the draw-bar, said bolts projected through the wheels of the car when the draw-bar is at its rearward limit of movement and withdrawn when the draw-bar is at its forward limit of movement.

7. The combination with a mining-car, of a draw-bar, slidably-mounted bolts pivoted to the draw-bar projected outwardly through the wheels of the car when the draw-bar is at its rearward limit of movement and withdrawn when the draw-bar is at its forward limit of

movement, said draw-bar formed with a notch at one side, a spring-actuated bolt entering the notch when the draw-bar is at its rearward limit, a wire connected with the said bolt, pulleys supporting said wire, a loop in the end of the wire and a hook on the car to be engaged by the loop on the wire for holding the slide-bolt away from the draw-bar.

8. The combination of two mining-cars, a sliding draw-bar at the front end of each, two bolts pivoted to each draw-bar, guides supporting said bolts with their outer ends in position adjacent to the front wheels of the car, stationary draw-bars at the rear ends of the cars, a coupler connecting the adjacent draw-bars, a spring-actuated lock automatically locking each draw-bar when at its rearward limit of movement, a wire connected with each slide-bolt passed outwardly and upwardly and then forwardly, pulleys for supporting said wire, a loop at the front of each wire, a hook on the car adjacent to each of said loops and a branch wire connected with each of said wires and extended along the car, the branch wire of the forward car detachably connected with the hook at the front of the second car, and a pulley for supporting the rear end of the branch wire.

CHILTON F. KELSO.

Witnesses:

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