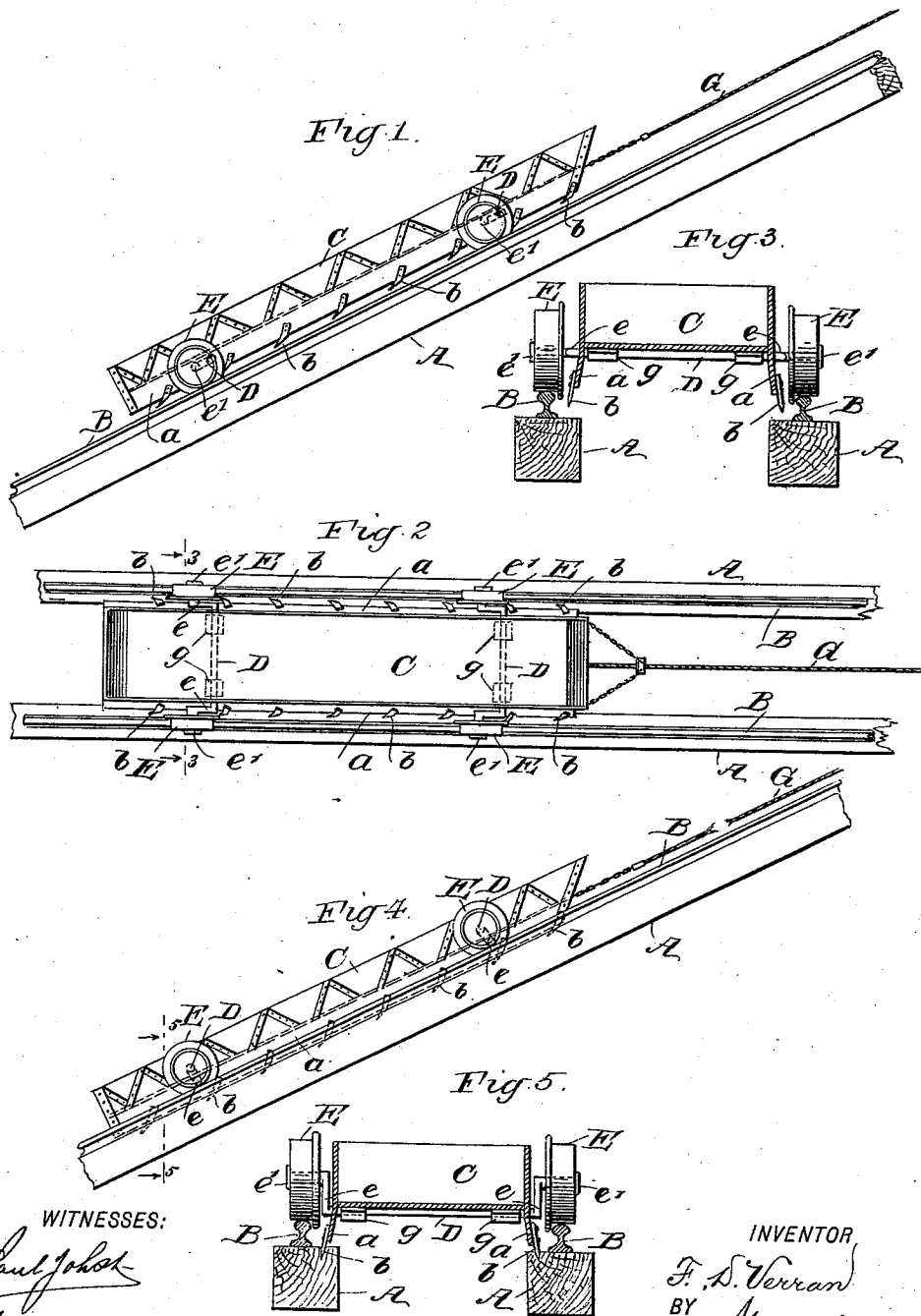


(No Model.)

F. D. VERRAN.
BRAKE.

No. 522,682.

Patented July 10, 1894.



WITNESSES:

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FRANCIS D. VERRAN, OF REPUBLIC, MICHIGAN.

BRAKE.

SPECIFICATION forming part of Letters Patent No. 522,682, dated July 10, 1894.

Application filed October 4, 1893. Serial No. 487,178. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS D. VERRAN, of Republic, in the county of Marquette and State of Michigan, have invented a new and useful Improvement in Brakes, of which the following is a full, clear, and exact description.

My invention relates to improvements in brakes for cars or skips used to carry men or material in mines, and particularly for cars used in mines working on inclined planes or slopes.

The objects of my invention are, to provide a novel, simple, practical and inexpensive brake mechanism, that may be applied to mine cars of ordinary construction, or skips used to carry men or material on slopes in the mine, and furnish a reliable means for arresting a car or train of cars or skips on a slope in a mine in case the draft rope or chain breaks while the car is in transit, the brake mechanism being automatically brought into service by the reverse motion of the car produced by its gravity.

To these ends, my invention consists in the construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of an inclined railway track in part, and a mine car moving thereon having the improvements attached and in position for service. Fig. 2 is a plan view of parts shown in Fig. 1. Fig. 3 is a transverse sectional view on the line 3—3 in Fig. 2. Fig. 4 is a side view of the inclined railway track and the mine car, and showing the improvements brought into service by the rupture of the draft rope used to move the car up the track; and Fig. 5 is a transverse sectional view on the line 5—5 in Fig. 4.

A, A, represent spaced longitudinally extending timbers of proper dimensions, which form the wooden sills for an inclined railroad in a mine slope, and B, B, are track rails that are affixed upon the sills in the usual manner.

The car shown, is of an ordinary construction for such vehicles as are employed to transport miners and the product of the mine up the slope, to the top of the latter, and consists of a rectangular body C, formed of plate metal

or wood and suitably stiffened by braces. The lower portions of the car sides are bent outwardly as shown at *a*, to adapt them to hold the dogs *b*, in proper position for effective service, said dogs consisting of a series of similar flat blades slightly curved edgewise near their lower ends that are sharpened. The dogs *b* are arranged and secured at spaced intervals along the sides of the car body as shown, their curved and pointed lower ends projecting a suitable distance below the lower edges of the sides of the car, all the dogs being inclined a like degree toward the rear end of the car-body.

Two similar car axles *D*, are provided, which are bent near the ends in the same direction at a right angle to their intermediate portions. The bent end portions *e* of the axles are furnished at their free ends with journal pins *e'* that project outwardly and are longitudinally aligned on each axle.

The car wheels *E*, are of a like diameter, and are loosely secured on the journal pins of the projected arms *e* on the axles, which arms are in effect cranks.

The bodies of the car axles *D*, are furnished with true bearing portions that are loosely engaged by boxes *g*, which boxes are affixed at proper points on the lower side of the car body bottom wall, so that the axles will be retained in connection with the car body, suitably spaced and arranged across the latter in parallel with each other.

The diameter of the car wheels *E*, is so proportioned that when the crank arms *e* are rearwardly projected and held in the same horizontal plane, the wheels will maintain the car body elevated a sufficient distance above the sills *A*, to afford clearance for the dogs *b*, therefrom.

It will be seen, that when draft strain is applied to the rope or chain *G*, that is attached by one end to the front end of the car body *C*, the manner of connecting the axles *D*, to the car body will cause the crank arms *e*, to rock rearwardly into a horizontal position, thereby adapting the car for a free movement up the slope. Should the draft rope or chain break, the car will instantly commence a retrograde movement, which will rock the crank arms *e*, into a nearly upright position, and so lower the car body that the dogs *b*, will engage

their pointed lower ends with the sills B, which will arrest the car before it has had time to acquire momentum or run down the slope any considerable distance, a forward movement of the car serving to release the dogs so as to permit a free transit of the car up the slope.

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

1. The combination with a body, and projections on the lower part of said body, of double cranked axles journaled on the body, and wheels loose on the cranks of the axles, substantially as described.

2. The combination with a body, and a series of dogs projected from the lower side edges of said body, of double cranked axles journaled on the body, and wheels loosely secured on laterally projected journal pins of the axle cranks, substantially as described.

3. The combination with a car body, and series of pointed dogs arranged at each side of the body, and projecting below it, of axles transversely journaled on the under side of the body, crank arms projected in the same direction at the ends of the axles, wheels loosely secured on journal pins projected from the ends of the crank arms, and a flexible

draft device at the front of the car body, substantially as described.

4. The combination, with a car body and series of spaced and pointed dogs secured to the lower side edges of said body and projecting outwardly and rearwardly therefrom, of double cranked axles journaled on the under side of the car body, wheels loosely secured on journal pins projected from the ends of the axle cranks, and a flexible draft connection at the front of the car body, substantially as described.

5. The combination with an inclined railroad track having sills, of a rectangular car body, two series of spaced and pointed dogs secured to project below and incline rearwardly from the sides of the car body, two double cranked axles journaled on the under side of the body, wheels of like diameter loosely secured on journal pins projected from the ends of the axle cranks at equal distances from the center of the axles, and a flexible draft connection at the front of the car body, substantially as described.

FRANCIS D. VERRAN.

Witnesses:

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