

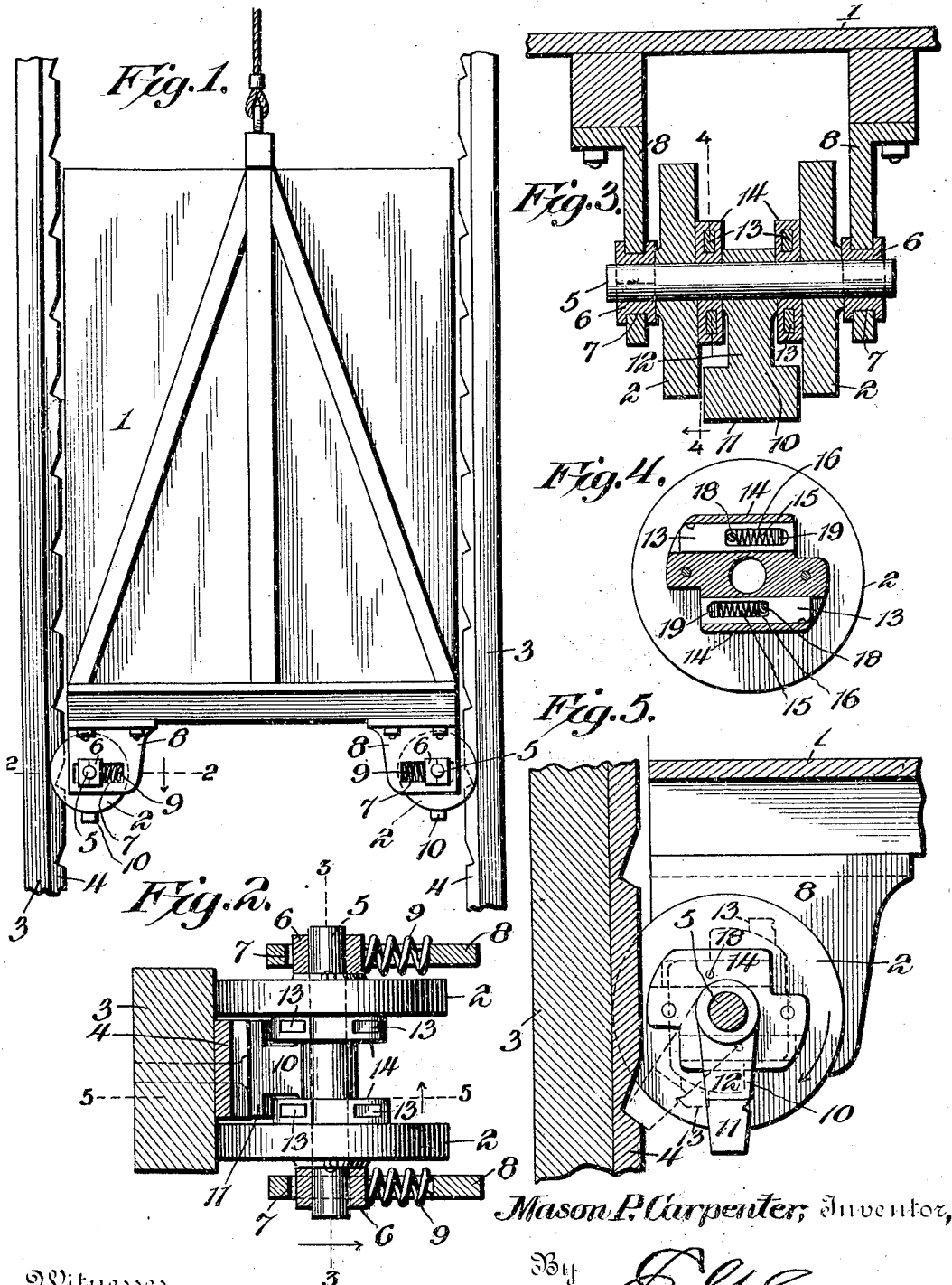
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M. P. CARPENTER.
ADJUSTABLE AUTOMATIC BRAKE.

APPLICATION FILED FEB. 29, 1904.

NO MODEL.



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ADJUSTABLE AUTOMATIC BRAKE.

SPECIFICATION forming part of Letters Patent No. 764,038, dated July 5, 1904.

Application filed February 29, 1904. Serial No. 195,809. (No model.)

To all whom it may concern:

Be it known that I, MASON P. CARPENTER, a citizen of the United States, residing at Mexico, in the county of Audrain and State of Missouri, have invented a new and useful Adjustable Automatic Brake, of which the following is a specification.

The invention relates to an adjustable automatically-operable brake for elevator-cars and various other movable devices.

The object of the present invention is to improve the construction of brakes for elevator-cars and various other movable vehicles and to provide a simple, inexpensive, and efficient device capable of effectually preventing an elevator from dropping to the bottom of the shaft should the cable break or the car otherwise become disconnected from the controlling devices.

A further object of the invention is to provide an adjustable automatically-operable device adapted to be thrown into operation through centrifugal force when the speed increases beyond a predetermined point.

The invention also has for its object to enable the automatically-operable brake to be readily adjusted to cause it to operate when the desired speed is attained by the rotary element on which it is mounted.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is an elevation of a portion of an elevator provided with automatic brakes constructed in accordance with this invention. Fig. 2 is a horizontal sectional view on the line 2 2 of Fig. 1. Fig. 3 is a transverse sectional view on the line 3 3 of Fig. 2. Fig. 4 is a detail sectional view on the line 4 4 of Fig. 3, illustrating the manner

of mounting the spring-actuated bars or members. Fig. 5 is a vertical sectional view taken on the line 5 5 of Fig. 2.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates an elevator-car, provided at opposite sides with automatically-operable brakes, each comprising a pair of rotary elements or wheels 2, arranged to run on the adjacent track 3 at opposite sides of a central rack 4, having teeth formed by recesses, as shown; but any other form of rack may be employed, if desired. The wheels 2 are mounted on a horizontal transverse shaft 5, journaled in suitable bearings of slidable boxes 6, which are mounted in slots 7 of brackets 8. The brackets, which are approximately L-shaped, as clearly illustrated in Fig. 3, are provided with top flanges, and the latter are pierced by bolts or other suitable fastening devices for securing the brackets to the bottom of the car. The bearing or journaled boxes are provided at opposite sides with flanges, as shown in Fig. 3, and are preferably sectional, as shown in Fig. 1, to enable the parts to be readily assembled; but they may be constructed in any other desired manner, as will be readily understood. The slots 7 are disposed horizontally and receive coiled springs 9, which normally hold the boxes extended and which are adapted to cushion a dog 10, suspended between the wheels and adapted to engage the rack, as hereinafter explained, the springs being arranged to relieve the car of the sudden jar incident to the dog engaging the rack. The dog is provided with an enlarged head 11, forming lateral extensions which project beyond a shank 12 and which are arranged in the path of spring-actuated bars or members 13. The bars or members 13 are housed within suitable casings 14, carried by the wheels 2 and arranged at the inner faces thereof at opposite sides of the shank 12. The casings 14 are provided at opposite sides of the shaft with longitudinal openings to receive the bars or members, and the latter are located at opposite sides of the shaft and are set at an angle, as clearly shown in Fig. 5, whereby the

bars or members, which are normally held retracted by coiled springs 15, are adapted to be readily thrown outward by centrifugal force when the wheels rotate in the direction of the arrow in Fig. 5 of the drawings. The wheels rotate in the direction of the arrow in Fig. 5 of the drawings when the elevator-car descends, and they rotate in the opposite direction when the elevator-car moves upward. The angular disposition of the casing which guides the bars or members is adapted to counteract the centrifugal force when the elevator-car moves upward, whereby the bars or members 13 are prevented from being accidentally thrown outward by a quick upward movement of the elevator-car. This will prevent the brake from being operated when the elevator-car moves upward and there will be no liability of such an operation breaking the cable which is connected with the car. The bars or members extend in opposite directions, and when thrown outward the wheel will be permitted to make only one-half a revolution before the dog is engaged by one of the bars or members. Each bar or member is provided with a longitudinal slot or opening 16, which receives a coiled spring 15, engaging the wall at the inner end of the slot or opening 16 and a transverse fastening device 18, which passes through the slot or opening 16, limits the inward movement of the bar or member. The tension of the spring may be varied by interposing plates or washers 19 between the inner ends of the springs and the inner wall of the slot or opening 16, and by this construction the spring may be readily adjusted to permit the bar or member 13 to be thrown outward when the wheel attains the desired speed. The dog, which is arranged in the path of the bar or members 13 when the latter are extended, is adapted to be swung outward to the position illustrated in dotted lines in Fig. 5 of the drawings, whereby it is carried into engagement with the rack. By this construction the elevator-car is positively prevented from dropping to the bottom of the elevator-shaft. The bars or members 13 are located at opposite sides of the shank of the dog, and the projecting head of the latter will be engaged at each side, whereby the dog will be positively carried into engagement with the rack. When the dog engages the rack, it will hold the car until the weight of the same is lifted from it. It will then swing back by gravity to the vertical position illustrated in full lines in Fig. 5.

The automatic brake is capable of universal application and when applied to a machine or vehicle moving on the surface of the ground a fixed portion of the frame of the car or machine may be arranged in the path of the rotary spring-engaged bars or members. This will dispense with the dog and will form a positive lock for preventing the rotation of the wheel or other rotary element.

The device will be found especially advantageous on agricultural machinery and will prevent the draft-animals running away with the same.

It is to be understood that the term "car" or "vehicle" used in the claims comprehends any moving part to which the invention may be applied and that the term "track" may accurately refer to the part the car runs on or a mere guide or a rack.

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

1. An automatic brake, comprising a rotary member normally held in an inoperative position and adapted to be thrown outward by centrifugal force, and a locking-dog for engaging a relatively fixed part arranged in the path of the rotary member when the same is extended and directly engaged by the same, substantially as described.

2. In an automatic brake, the combination of a track, a wheel movable on the track and having a rotary member normally held in an inoperative position and adapted to be thrown outward by centrifugal force, and a dog arranged in the path of the member when the same is extended, said dog having a direct engagement with the track, substantially as described.

3. In an automatic brake, the combination of a vehicle, a track for the same, a wheel mounted on the vehicle and engaging the track, a member also carried by the vehicle and adapted to be thrown outward by centrifugal force communicated through the rotation of the wheel, and a dog arranged in the path of the member when the same is extended, said dog having a direct engagement with the track, substantially as described.

4. In an automatic brake, the combination of a wheel having a casing, a member slidable in the casing and adapted to be thrown outward by centrifugal force, said member being provided between its ends with an opening, a fastening device carried by the casing and extending through the opening, a coiled spring arranged in the opening of the member for holding the same normally against outward movement, means for adjusting the spring for varying the tension thereof, and locking mechanism arranged in the path of the member when the same is extended, substantially as described.

5. In an automatic brake, the combination of a rotary member normally held in an inoperative position and adapted to be thrown outward by centrifugal force, a dog arranged in the path of the member when the same is extended, said member and dog having a common pivotal point, means arranged to be engaged by the dog, and means for cushioning the dog, substantially as described.

6. In an automatic brake, the combination of a shaft, a rotary member carried by the shaft

and normally held against outward movement and adapted to be extended by centrifugal force, a dog mounted on the shaft and arranged in the path of the member when the same is extended, and a spring for cushioning the shaft, substantially as described.

7. In an automatic brake, the combination of brackets having openings, boxes slidable in the openings, a shaft mounted in the boxes, springs engaging the boxes for cushioning the shaft, a rotary member normally held against outward movement and adapted to be thrown outward by centrifugal force, and a dog mounted on the shaft and arranged in the path of the rotary member when the same is extended, substantially as described.

8. In an automatic brake, the combination of

opposite brackets, a shaft supported by the brackets, wheels mounted on the shaft and provided at their inner faces with casings, members slidable in the casings and arranged in pairs at opposite sides of the shaft and normally held against outward movement and adapted to be thrown outward by centrifugal force, and a dog mounted on the shaft and arranged in the path of the members when the same are extended, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

MASON P. CARPENTER.

Witnesses:

H. F. RILEY,

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