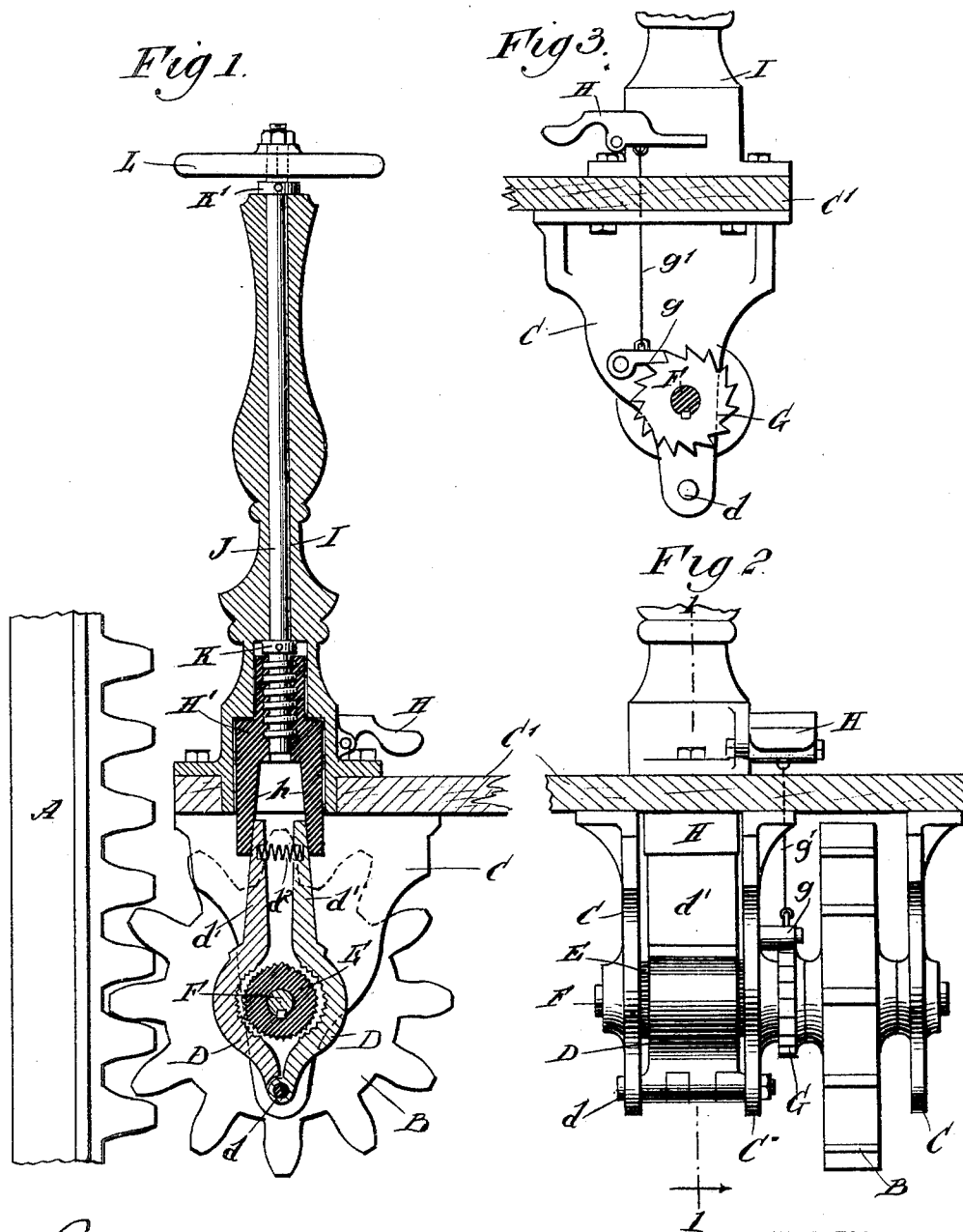


(No Model.)

W. WEISMANTEL.
ELEVATOR CLUTCH AND BRAKE.

No. 586,885.

Patented July 20, 1897.



WITNESSES
Paul J. ...
H. L. Reynolds.

INVENTOR
W. Weismantel.
BY *Mumford*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM WEISMANTEL, OF NEW YORK, N. Y.

ELEVATOR CLUTCH AND BRAKE.

SPECIFICATION forming part of Letters Patent No. 586,885, dated July 20, 1897.

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To all whom it may concern:

Be it known that I, WILLIAM WEISMANTEL, of New York city, in the county and State of New York, have invented a new and Improved Elevator Clutch and Brake, of which the following is a full, clear, and exact description.

My invention relates to an improvement in devices calculated for holding an elevator against dropping in case the hoisting apparatus should give way and also to provide for releasing the elevator should the same stop between landings.

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

Figure 1 is a sectional side elevation of my device. Fig. 2 is an elevation thereof, taken at right angles to that of Fig. 1; and Fig. 3 is a detail section showing the ratchet-wheel and dog.

My invention is intended as a substitute for the locking devices often placed on elevators which are ordinarily operated by an increase of speed over the normal. My device is intended to be always in position to stop the cage in case of accident, except when released by hand. It therefore prevents the cage from ever attaining a dangerous speed before being thrown into operation.

With my device I use a fixed rack A, which is attached to the building along one side of the elevator-well. A pinion B, journaled upon the elevator-cage, meshes with this rack and revolves as the elevator rises or falls.

Upon the same shaft F as that which carries the pinion is fixed a ratchet-wheel G, which is engaged by a pawl g, pivoted upon one of the brackets C which supports the shaft F. This pawl is connected by a cord or wire g' with a lever H, pivoted to the floor of the elevator, and adapted to be engaged by the foot of the operator. This pawl is intended to be normally in engagement with the ratchet-wheel when the elevator is rising.

When it is desired to lower the elevator, the pawl will be disengaged by placing one foot upon the lever H. In case any accident should happen to the hoisting mechanism during the upward journey of the elevator the pawl will automatically engage a tooth

of the ratchet-wheel and hold the elevator against dropping. This pawl and ratchet-wheel will absolutely prevent any accident due to the breaking of the hoisting apparatus while the elevator is being hoisted.

In case any accident should happen during the descent of the elevator the lever H would be released at once and the pawl g brought into engagement with the ratchet-wheel G. I have also provided means for lowering the elevator in case it becomes stopped between landings. These means consist, first, of the two levers D, pivoted at d beneath the shaft F. The shaft F at this point is provided with a cylinder E, which is provided with longitudinal corrugations or grooves.

The encircling contact-surfaces of the levers D are also grooved to correspond with the grooves in the cylinder. The upper ends d' of these levers have their outer surfaces sloping toward each other, so as to form two sides of a wedge. These ends d' of the levers are engaged by the sloping surfaces h on each side of the socket in the lower portion of a block H', mounted to slide in the base of the standard or post I, which is attached to the floor of the elevator-cage.

The block H' has a central screw-threaded hole which receives the threaded lower portion of a shaft J, which is mounted in a post I and held against longitudinal movement by the collars K and K', bearing, respectively, against the top of the hole in the post and the upper end of the post. The upper end of the shaft J is provided with a hand-wheel L, by which the same may be rotated. If now the block H' is depressed by the rotation of the hand-wheel L, it will draw together the upper ends of the levers D and clamp the same upon the cylinder E. This will cause sufficient friction between the cylinder and the levers to hold the elevator and prevent its moving downward or to regulate its downward movement at any speed desired.

The upper ends of the levers D may be separated by a spring d², if desired. This would insure a prompt separation of the levers, although it is hardly considered necessary, as the weight of the levers would tend to separate them in addition to the separating effect caused by engagement with the cylinder E.

In case the elevator should become stopped between landings the pawl *g* would be released after first clamping the levers *D* upon the cylinder *E*. The elevator could then be
 5 lowered at any speed desired by loosening the levers *D* more or less, so as to permit of the cylinder *E* turning between the levers. In case of any accident it would therefore be
 10 an easy matter to release any passengers who might be in the elevator.

My device will add to the safety and convenience of all elevators by providing a positive means for holding the cage at landings, thus preventing accidents which might otherwise occur through the elevator's dropping
 15 after being stopped at landings, as this will be prevented by the engagement of the pawl and ratchet-wheel.

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

1. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion journaled on the
 25 cage and meshing with said rack, of a ratchet-wheel connected to the pinion, a pawl acting on the ratchet-wheel to prevent the cage's descent while the pawl and ratchet-wheel are in engagement, and a manually-operated lever
 30 within the cage for disengaging said pawl, substantially as described.

2. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion journaled on the
 35 cage and meshing with said rack, of a ratchet-wheel connected to the pinion, a pawl acting on the ratchet-wheel to prevent the cage's descent while the pawl and ratchet-wheel are in engagement, a manually-operated lever with-
 40 in the cage for disengaging said pawl, and a clamping device attached to the pinion and controlled from within the cage, substantially as described.

3. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion journaled on the
 45 cage and meshing with said rack, of a friction-cylinder connected to the pinion, pivoted levers surrounding said cylinder, and manually-operated clamping mechanism therefor,
 50 within the cage, substantially as described.

4. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion journaled on the
 55 cage and meshing with said rack, of a friction-cylinder connected to the pinion, pivoted arms surrounding said cylinder and having converging outer surfaces, a block having a socket with converging sides engaging
 60 the free ends of said arms, and means for con-

trolling the position of said block from the inside of the cage, substantially as described.

5. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion mounted upon the
 65 cage and meshing with the rack, a ratchet-wheel connected to the pinion, a pawl normally engaging the ratchet-wheel to prevent the descent of the cage, and means for disengaging the same at will, of a friction-cyl-
 70 inder connected to the pinion, pivoted arms surrounding said cylinder and having converging outer surfaces, a block having a socket with converging sides engaging the free ends of said arms, and means for con-
 75 trolling the position of said block from the inside of the cage, substantially as described.

6. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion mounted upon the
 80 cage and meshing with said rack, a ratchet-wheel connected to the pinion, a pawl normally engaging the ratchet-wheel to prevent the descent of the cage, and a foot-lever within the cage connected to the pawl for dis-
 85 engaging the same, of a friction-cylinder connected to the pinion, pivoted arms surrounding said cylinder and having converging outer surfaces, a block having a socket with converging sides engaging with the free ends of
 90 said arms, and means for controlling the position of said block from inside the cage, substantially as described.

7. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion mounted upon the
 95 cage and meshing with the rack, of a friction-cylinder connected to the pinion, pivoted arms surrounding said cylinder and having converging outer surfaces, a block having a
 100 socket with converging sides engaging the free ends of said arms, a shaft screw-threaded into said block and journaled upon the cage, and a hand-wheel upon the upper end of the shaft, substantially as described.

8. In an elevator clutch and brake, the combination with a stationary vertical rack, an elevator-cage and a pinion mounted upon the
 cage and meshing with the rack, of a friction-cylinder having longitudinal grooves therein,
 110 a pair of clamping-arms embracing the cylinder and having similarly corrugated or grooved cavities fitting said cylinder, and means for clamping said levers together controlled from within the cage, substantially as
 115 described.

WILLIAM WEISMANTEL.

Witnesses:

JOHN BRUNKE,

C. STACY CLARK.