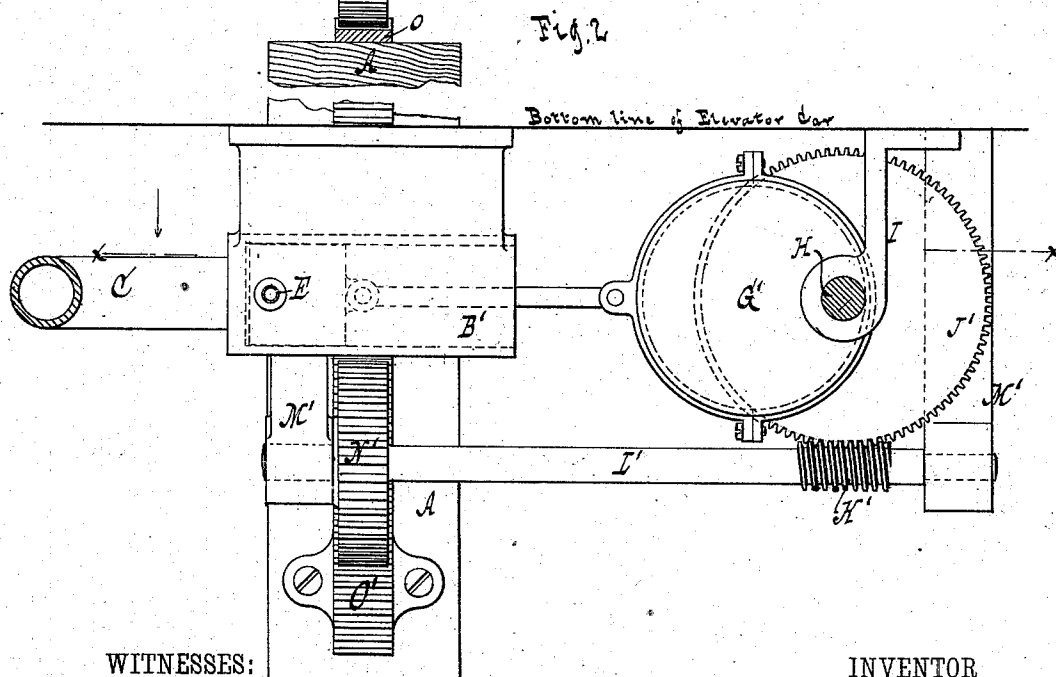
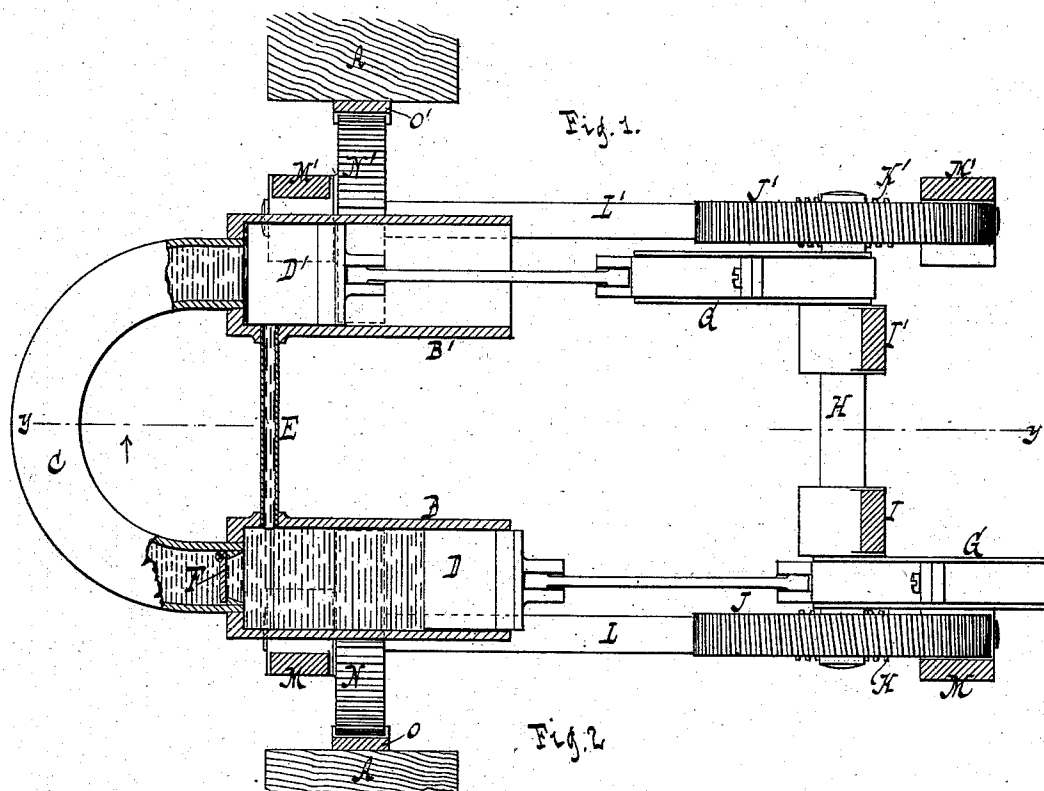


(No Model.)

T. McADOO.
ELEVATOR.

No. 293,050.

Patented Feb. 5, 1884.



WITNESSES:

Geo. H. Leland
William Miller

INVENTOR

Thomas McAdoo

BY *Van Santvoord Hauff*

his ATTORNEYS

UNITED STATES PATENT OFFICE.

THOMAS McADOO, OF NEW YORK, N. Y.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 298,050, dated February 5, 1884.

Application filed July 21, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS McADOO, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Elevators, of which the following is a specification.

This invention relates to a check for an elevator-car which allows the car to ascend freely, while it prevents said car in its descent from falling or from moving with an undue velocity.

The peculiar and novel construction of my check is pointed out in the following specification and illustrated in the accompanying drawings, in which—

Figure 1 represents a horizontal section of the check mechanism in the plane $x x$, Fig. 2. Fig. 2 is a longitudinal vertical section in the plane $y y$, Fig. 1.

Similar letters indicate corresponding parts. This check mechanism is secured to the bottom of the car, which moves up and down between the vertical posts $A A'$. Said check mechanism consists of two cylinders, $B B'$, which are open at their inner ends, while their outer ends are connected by a U-shaped pipe, C. Each of the cylinders is provided with a piston, $D D'$, respectively, and a small tube, E, extends from one cylinder to the other, said tube being situated near the outer ends of the cylinders, as shown in the drawings.

In the interior of the pipe C is situated a check-valve, F, which opens when the piston D moves inward, and which closes when the piston D' moves inward. Said pistons move in opposite directions, and a reciprocating motion is imparted to them by means of eccentrics $G G'$, which are mounted on a shaft, H.

Instead of eccentrics, I can employ cranks or other equivalent means.

The shaft H has its bearings in hangers I, which are firmly secured to the bottom of the car, and on the outer ends of said shaft are firmly mounted worm-wheels $J J'$, which gear into worms $K K'$, mounted on shafts $L L'$. These shafts have their bearings in hangers $M M'$, which are secured to the bottom of the car, and on said shafts are mounted cog-wheels $N N'$, which engage with toothed racks $O O'$, fastened to the vertical posts $A A'$ and extending from the bottom of the elevator-well to its top.

The cylinders $B B'$ and the pipe C are charged

with a suitable liquid—such as glycerine—and when the car is clear down the pistons $D D'$ occupy the positions shown in Fig. 1, the piston D being at the outer and the piston D' at the inner end of its stroke. When the elevator-car is raised up the cog-wheels $N N'$ revolve, and a slow revolving motion is imparted to the shaft H, so that the piston D is forced inward, while the piston D' moves outward. During the upward motion of the car, therefore, the liquid contained in cylinder B and in the pipe C is gradually forced into the cylinder B' , and since the check-valve F opens, when the piston D moves inward, no perceptible obstruction is produced by the liquid. The motion of the pistons $D D'$ is so gaged that when the elevator-car has moved clear up to the top of the well the piston D has reached the inner and the piston D' the outer end of its stroke. When the car descends, the piston D' moves inward and the piston D outward, the check-valve F closes by the pressure of the liquid on its back, and the liquid which is gradually displaced from the cylinder B' while the piston D' moves inward has to pass through the small tube E in order to reach the cylinder B. The liquid therefore creates a material obstruction to the downward motion of the car, and it will be readily seen that, even if the rope from which the car is suspended should break, the downward motion of the car will be checked to such an extent that no accident can happen.

The tube E may be provided with a cock, so that the flow of the liquid through said tube can be regulated, and by closing this stop-cock the downward motion of the car can be arrested. It must also be remarked that the mechanism for imparting to the pistons $D D'$ a reciprocating motion in opposite directions can be modified in various ways, and I do not wish to confine myself to the exact mechanism shown in the drawings; but this mechanism will give a good result, it is easily applied, and not liable to get out of order.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, substantially as hereinbefore described, with an elevator-car, of two cylinders fastened to the car, the pipe C, and the tube E, connecting said cylinders, the check-valve in the pipe C, the pistons moving in the two cylinders, and suitable mechanism

for imparting to the pistons a reciprocating motion in opposite directions.

2. The combination, substantially as herein-
before described, with an elevator-car, of two
5 cylinders fastened to the bottom of the car, the
pipe C, and tube E, connecting said cylinders,
the check-valve in the pipe C, the pistons mov-
ing in the two cylinders, the toothed racks se-
cured to the posts A A', the cog-wheels N N',
10 shafts L L', worms K K', worm-wheels J J',

shaft H, and suitable means for transmitting motion from the shaft H to the pistons D D'.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

THOS. MCADOO. [L. S.]

Witnesses:

JOHN MORRIS,

CHAS. WAHLERS.