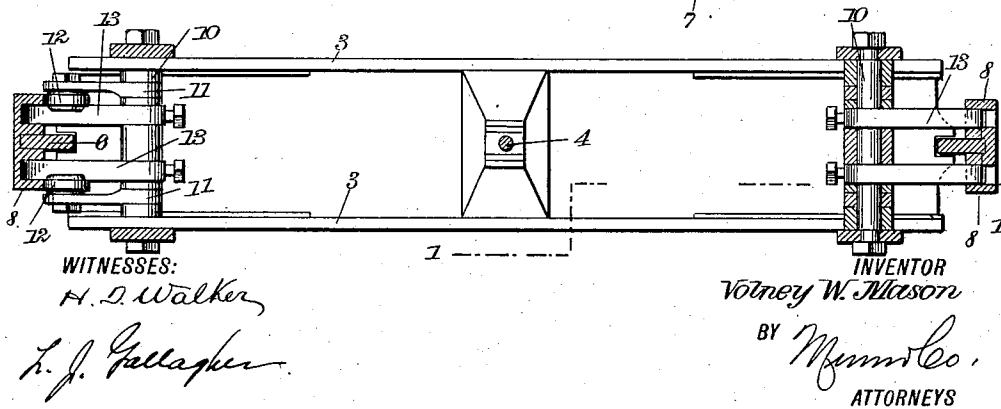
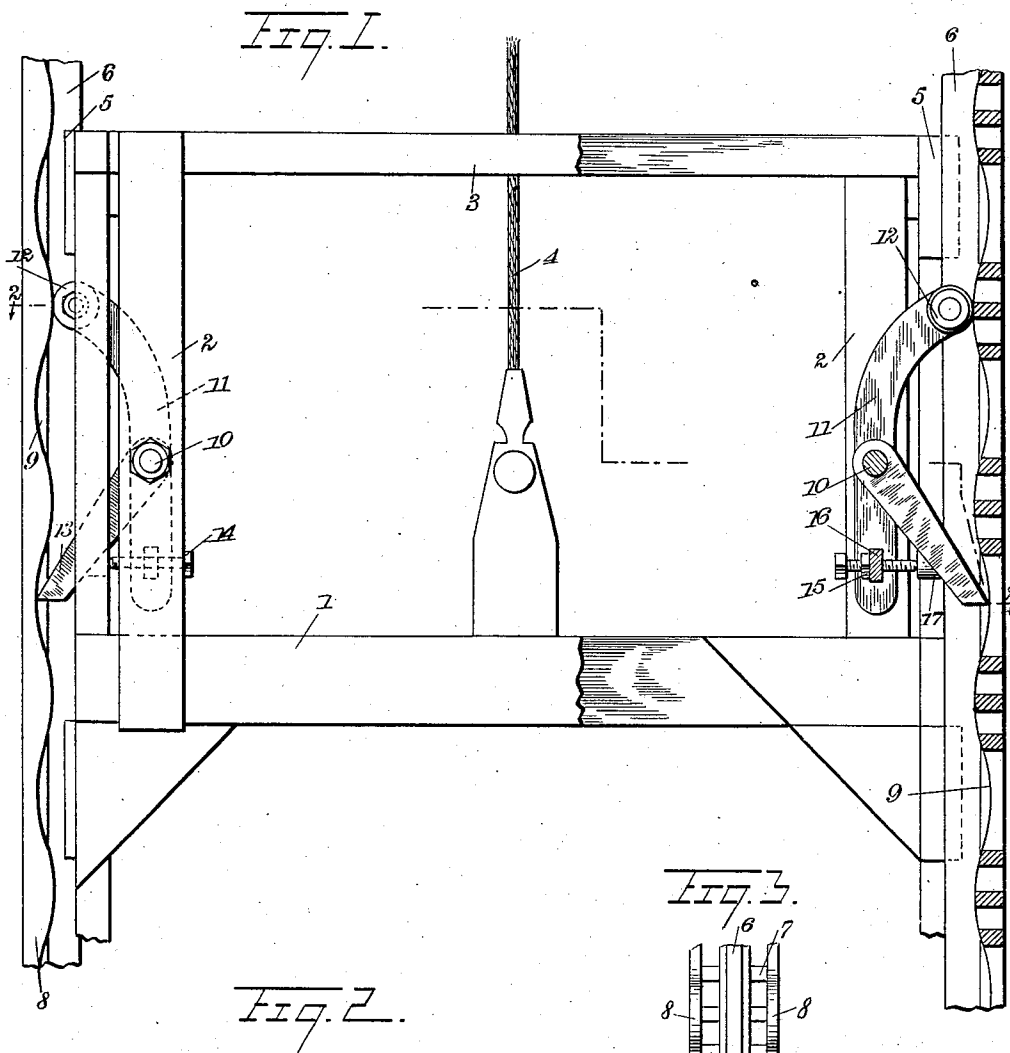


V. W. MASON.
SAFETY DEVICE FOR ELEVATORS.
APPLICATION FILED APR. 24, 1911.

1,024,943.

Patented Apr. 30, 1912.



UNITED STATES PATENT OFFICE.

VOLNEY W. MASON, OF PROVIDENCE, RHODE ISLAND.

SAFETY DEVICE FOR ELEVATORS.

1,024,943.

Specification of Letters Patent.

Patented Apr. 30, 1912.

Application filed April 24, 1911. Serial No. 623,019.

To all whom it may concern:

Be it known that I, VOLNEY W. MASON, a citizen of the United States, and a resident of Providence, in the county of Providence and State of Rhode Island, have invented a new and Improved Safety Device for Elevators, of which the following is a full, clear, and exact description.

My invention relates generally to safety devices for elevators and more particularly it comprehends the mechanism which is adapted to operate when the car exceeds a certain speed, thereby stopping the car.

The object of my invention is to provide an adjustable safety device for elevators consisting of pivoted members carried by the car, these members co-acting with a suitable vertically extending rack in the elevator shaft.

A further object of my invention is to provide an adjustable safety device for elevators which consists of members carried by the car, which members are movable relatively to each other and which coöperate with a vertically extending rack in the elevator shaft whereby, when the car exceeds a certain speed, the device may be brought into action, thereby stopping the car.

Reference is to be had to the accompanying drawings forming a part of this specification, in which like characters of reference denote corresponding parts in all the views, and in which—

Figure 1 is a side view of a portion of an elevator car, together with the vertically extending racks carried in the elevator shaft; Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1; Fig. 3 is a view of a part of the vertically extending rack.

The top member 1 of any suitable car is provided with a framework comprising vertically extending members 2, together with a horizontal member 3, connecting these vertically extending members, adapted to carry that part of the device which moves with the car; this framework is preferably double and extends on opposite sides of a suitable cable 4 by which the car is raised, the central portion of the framework being provided with suitable shoes 5 at opposite ends thereof which bear along the guides 6 at opposite sides of the elevator shaft.

Extending vertically in the shaft and preferably adjacent each of the guides 6 is a serpentine rack made up of the successive teeth 7 which extend on opposite sides of the

guide 6, there being another guiding member 8 at the outer ends of the teeth 7, this guide being provided with a series of equally spaced curved recesses 9, whereby the side of this guide is of serpentine, or undulating conformation.

Extending transversely of each of the members 2 of the supporting frame are suitable bolts or equivalent supporting means 10, which bolts are secured at opposite ends in the members 2; pivotally supported on each of the bolts are a plurality of levers 11 having at their upper outwardly turned ends suitable rollers 12, which rollers are adapted to bear against the serpentine edges of the guides 8 as the car rises and falls, whereby these levers oscillate about the bolt 10 as a center. Each of the bolts 10, also pivotally supports a plurality of dogs 13 which extend angularly from opposite sides of the car, each being maintained in such position by means of a bolt 14 having a lock nut 15 carried in a suitable lug 16 at the lower end of the lever 11, the dog being provided with a suitable boss 17 against which the outer end of the bolt 14 rests. Each of these dogs travels in the paths defined by the serpentine guide on one side and the central guide 6 on the other side, the distance between the outer end of the dog and the teeth 7 of the racks being varied by means of the aforesaid bolt 14.

As the car travels up or down in the elevator shaft, the rollers 12 at the upper ends of the levers 11 follow the contour of the serpentine guides 8 whereby the lower ends of the levers move back and forth carrying with them the dogs 13, the bolts 14 being so adjusted that at a certain limit of speed each of the dogs will escape engagement with any of the teeth 7, a greater speed, however, causing the ends of these dogs to engage with some of these teeth by reason of the dogs being thrown outwardly by the succeeding movements of the lever 11. The dogs when brought into engagement with the teeth 7 will stop the car and will also support it independently of the cable 4 so that if the cable should break and the car should increase its speed quickly, these dogs will prevent the car from dropping.

It will be noted that each of the dogs 13 is movably supported on one of the bolts 10 and that the relation of the end of the dog with respect to the lower end of the lever 11 is determined by means of the adjusting bolt

14 so that the angle between the lower end
of the lever 11 carrying the bolt and the
lower end of the dog 13 may be varied by
moving the bolt back and forth, a lock nut
5 15 being provided to maintain the position
of the bolt. By such construction and rela-
tion of the parts I am enabled to provide
a device which may be adapted to different
cars or which may be so adjusted on the
10 same car that various speeds may be taken
as limiting the operation of my device.

It is obvious that the form, shape and
size of the parts described will be deter-
mined largely by the size of the car on
15 which they are placed and by the conditions
which are to be met in the operation of such
cars, such changes being included within
the scope of my invention as defined in the
following claims.

20 Having thus described my invention, I
claim as new, and desire to secure by Let-
ters Patent:—

1. A device of the class described compris-
ing a suitable framework, a lever carried
25 thereby having a roller at its upper end, a
bolt carried by the framework on which the
said lever is pivotally supported, a dog also
mounted on the said bolt and extending ad-
jacent the lower end of the lever, a bolt car-
30 ried by the lever and extending transversely
thereof, one end of the bolt engaging the
dog whereby the relation of the dog with
respect to the lever may be varied, a serpen-
tine rack, the roller on the said lever follow-
35 ing the serpentine outline of the rack where-
by the end of the dog is brought to follow
the contour of the rack, the said dog being
adjustable with respect to the lever by means
of the said transversely extending bolt so

that when a certain speed is passed the end 40
of the dog may engage the teeth of the said
rack.

2. A device of the class described com-
prising a suitable framework, a lever hav-
ing a roller at its upper end carried by 45
the framework and pivotally supported
thereon at an intermediate portion, a bolt
carried by the framework on which the lever
is supported, a dog pivotally supported on
the said bolt, a transversely extending bolt 50
carried adjacent the lower end of the lever
and bearing against the side of the said dog,
the lower end of the lever being provided
with a lug having a threaded opening there-
in through which the said bolt extends, the 55
dog being freely movable in one direction
and held against movement in the opposite
direction by reason of engagement with the
said bolt, movement of the bolt moving the
dog, whereby the relation of the lower end 60
of the dog with the lower end of the
lever may be varied, a serpentine rack,
the roller and the lever being in en-
gagement with the serpentine rack and fol-
lowing the outline thereof, whereby the 65
lower end of the dog is also brought to fol-
low the contour of the rack, the position of
the dog relatively to the lever determining
the speed at which the dog will come into
engagement with the teeth of the rack as 70
the roller travels over the rack.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

VOLNEY W. MASON.

Witnesses:

L. J. GALLAGHER,
PHILIP D. ROLLHAUS.