G. LOCKHART.

ELEVATOR LOCK.

APPLICATION FILED FEB. 13, 1911.

1,023,159. Patented Apr. 16, 1912.

Fig. 1

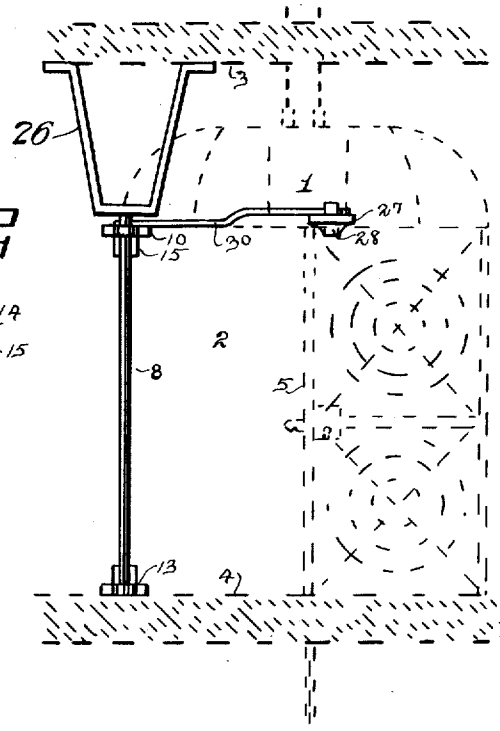

Fig. 1a

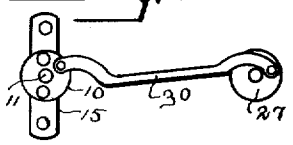

Fig. 2

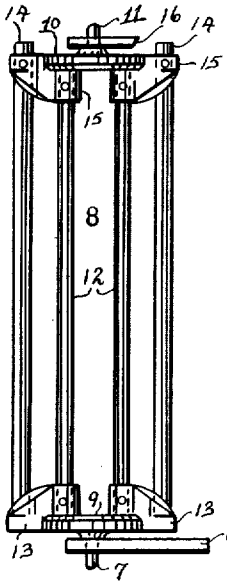

Fig. 3

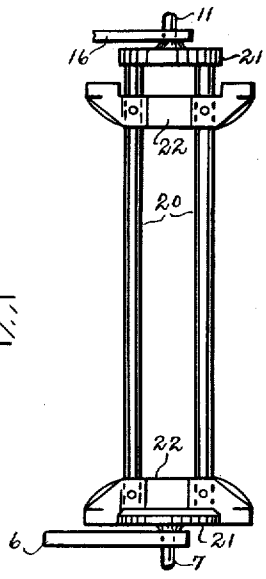

Fig. 5

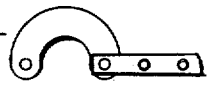

Fig. 4

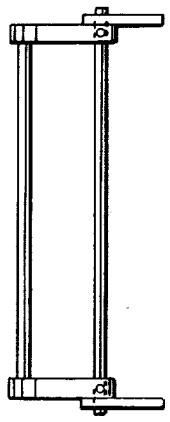

Fig. 2a

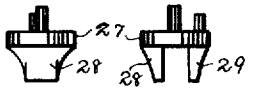

Fig. 2b

WITNESSES

O. H. Boggess.

S. H. Godder

INVENTOR

George Lockhart

BY

Arthur Phelps Marr

ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE LOCKHART, OF NEW YORK, N. Y.

ELEVATOR-LOCK.

1,023,159. Specification of Letters Patent. Patented Apr. 16, 1912.

Application filed February 13, 1911. Serial No. 608,463.

To all whom it may concern:

Be it known that I, GEORGE LOCKHART, a citizen of the United States, and resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Elevator-Locks, of which the following is a specification.

This device is intended to work independently of the mechanism which operates the elevator car. It is intended to mechanically lock the elevator car at floors in such a manner as to make it impossible for the car to move until the door is safely closed and the operator has so conditioned the whole apparatus as to make a movement of the car absolutely safe.

Most elevator accidents occur from the fact that the elevator car is started before the door has been properly closed and secured, and it is to make such accidents impossible that I have constructed a device, which though carried by the car is of sufficient weight and strength to secure the car at a floor level and forcibly retain it there until the operator intentionally starts it.

Approximations of this device have been made but most of them operate through the starting and stopping gear of the car. There are objections to this mode of operation particularly in the fact that it usually requires a separate design of the device for use with each individual car, while my device may be used with any car, it being only necessary to shorten the standard or change the location of the uppermost locking shoe.

The following is what I consider the best means of carrying out this invention, and the accompanying drawings form a part of this specification, in which—

Figure 1 is a view in elevation, partly in section showing an elevator car having my invention in place thereon. Fig. 2 is on a larger scale, showing the device detached. Fig. 3 shows a modification, and Fig. 4 is another modification. Fig. 5 is an end view corresponding to Fig. 4. Fig. 1^a is a plan view of the device in operation. Fig. 2^a is a view of the auxiliary locking means. Fig. 2^b is a view taken at right angles to Fig. 2^a.

Similar reference numerals indicate like parts in all the figures where they appear.

At 1, I have shown an elevator car of the ordinary construction having the door-way 2 for the admission of passengers, and at 3 the ceiling above the car is shown. The floor 4 is the level at which the car has been stopped for the purpose of discharging or receiving passengers. A sliding gate 5 is opened to its full extent. Near one of the supporting columns of the elevator, though in the open door-way of the car, I have pivotally secured my locking device which comprises the foot-plate 6 screwed to the floor of the car and having a hole drilled near one end to serve as a bearing for the lowermost pivot 7 of the locking member 8. The locking member 8 is constructed of a circular base plate 9 in which the pivot 7 is secured and an uppermost plate 10 provided with the pivot 11. Two cold-drawn steel tubes 12 maintain the plates 9 and 10 a certain positive distance apart and each is provided at its lower end with a foot or step piece 13. A second bar or tube 14 extends up from a seat in the step 13 for a certain extent which must be regulated by the distance between the surface of the floor and the top of the car. A bracket 15 secures the rod 14 to the rod 12. The bracket 15 is adjustable upon the rod 12, but should find its permanent location as far up on the rod 14 as possible so as to give the upper end of the rod 14 all possible support. A bracket 16 is secured to the top of the car and the outwardly extended arm is provided with a hole in which the pin 11 is free to rotate.

In its simplest form the operation of the device is as follows: When the car stops at a floor, the operator before opening the door, partially revolves the locking means on its vertical axis causing one of the steps 13 to project over the floor surface while the upper end of the rod, which rests in this block passes under the bracket 26 but in close proximity thereto. The bracket 26 is secured to the ceiling and may extend down to any desired extent but I prefer that its under side will be on a level with the top of the car when the car is at rest at the floor. The other step piece 13 is projecting well within the car, and even though an attempt be made to move the car it will be found to be held securely between the bracket 26 and the floor below.

A member of my device not before described but to which I attach importance is. the auxiliary locking means comprising the disk 27, rotatably secured to the top of the car and having lips 28 and 29 extending downwardly to an extent slightly below the top of the door. The lips 28 and 29 should

be in line with the door and to accomplish this a portion of the track supporting the door must be cut away. A link 30 connects the disk 27 with the disk 10 by means of the eccentric pivots and any slight rotation of the disk 10 will be accompanied by a like movement of the disk 27. When the door is closed and the locking means is restored to its normal position, the lips 28 and 29 abut the back of the door in such a manner as to prevent the door from being open, but a movement of the locking means 8 into position to hold the elevator car rotates the disk 27 with its downwardly extending lips and so conditions the lips that the door 5 may pass freely between them.

A close study of this construction will show that the locking means 8 cannot be restored until the door 5 is fully closed nor can the door be opened until the locking means 8 is in position.

Modifications of my structure, within the scope of the appended claims may be made by a good mechanic, without departing from the principle or sacrificing the advantages of this invention, and I have shown in Figs. 3 and 4 modifications which consist of a material change in the locking means. Fig. 3 shows a device which although simpler is not so strong, it comprises the rotating bars 20 having a bearing block 21 at each end and a projecting step 22 secured at a desirable location near the top and bottom. Fig. 4 is very similar to the device shown in Fig. 2 though of simpler construction.

Having carefully and fully described my invention what I claim and desire to secure by Letters Patent is:

1. An elevator lock comprising a plurality of upright members spaced apart, a plate adjacent to each of the ends of said upright members, said plate being provided with a pivot member secured centrally within said plate and a bearing member arranged to receive each said pivot member for the purpose set forth.

2. An elevator stop comprising a plurality of upright and tubular locking members, a disk arranged at the ends of two of said upright members, foot pieces supporting two other upright members and an adjustable member securing said upright members in operative relation, said adjustable member being arranged upon said upright members at a point between their ends as specified.

3. The combination with a door and a locking means arranged adjacent thereto of an elevator lock comprising a plurality of upright members spaced apart, a plate adjacent to each of the ends of said upright members, said plate being provided with a centrally disposed pivot for supporting said upright members, and a second pivot arranged eccentrically to the first said pivot, and a link connected to said eccentric pivot and operating the locking means adjacent to the door of the elevator as herein specified.

4. An elevator lock comprising a plurality of upright members spaced apart, plates adjacent to the ends of said upright members, said plates being provided with centrally disposed pivots, and a second pivot arranged in one of said plates eccentrically to the first said pivot, a link connected to said eccentric pivot and a locking member operable by said link, said locking member being provided with a plurality of downward projections arranged to allow an elevator door to pass between them.

Signed at New York city, N. Y. this 1st day of February A. D. 1911.

GEORGE LOCKHART.

Witnesses:

ARTHUR PHELPS MARR,
S. H. STODDER.