

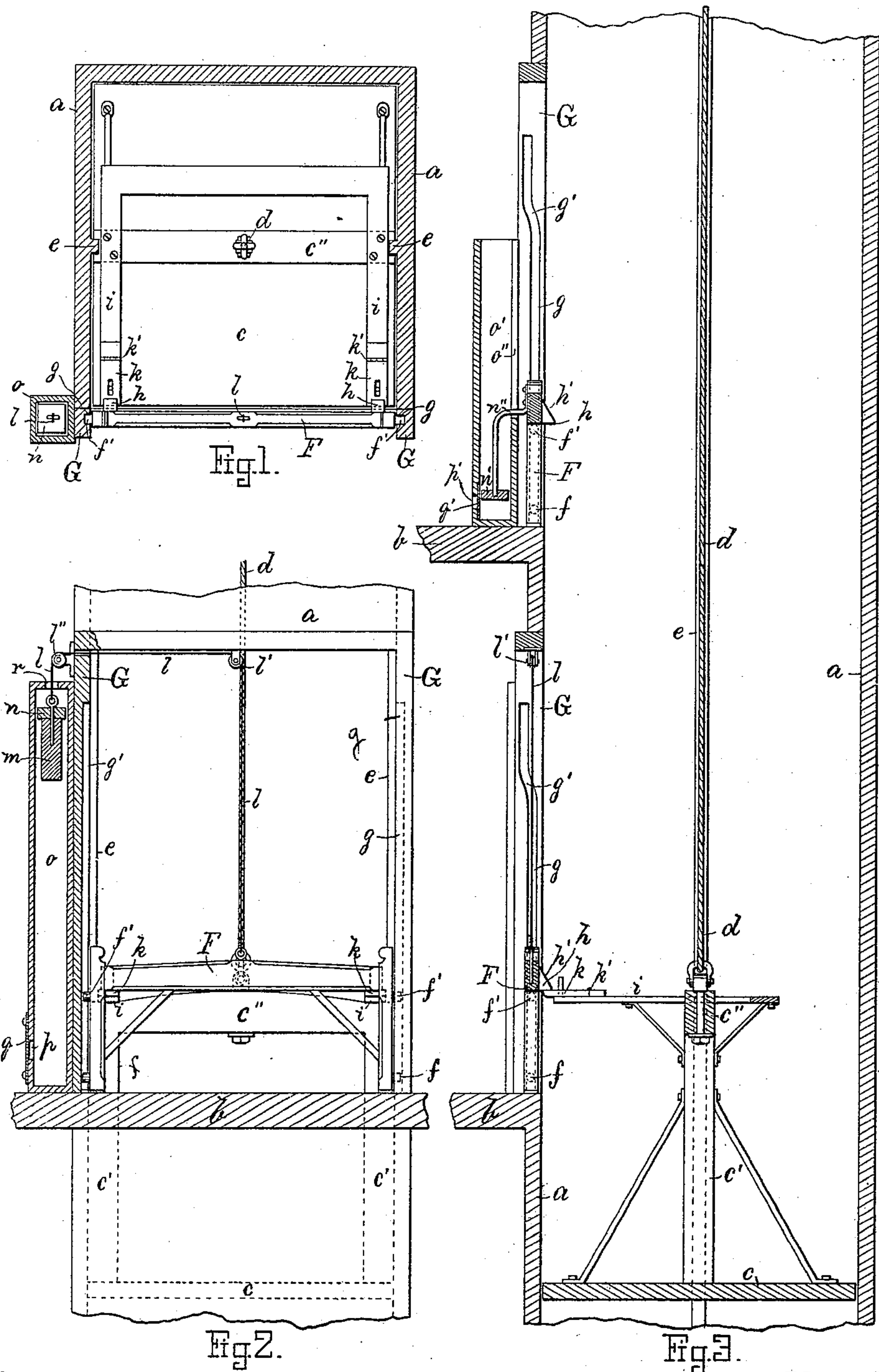
(No Model.)

G. WOODS.

Automatic Elevator Gate.

No. 241,111.

Patented May 3, 1881.



Witnesses.

Henry Chadbourne.
E. Allen.

Inventor.

George Woods.
by Alban Andrews, his atty.

UNITED STATES PATENT OFFICE.

GEORGE WOODS, OF CAMBRIDGEPORT, MASSACHUSETTS, ASSIGNOR TO
HIMSELF AND GEORGE P. CARTER, OF SAME PLACE.

AUTOMATIC ELEVATOR-GATE.

SPECIFICATION forming part of Letters Patent No. 241,111, dated May 3, 1881.

Application filed March 3, 1881. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WOODS, a citizen of the United States, residing at Cambridgeport, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Automatic Elevator-Gates; and I do hereby declare that the same are fully described in the following specification and illustrated in the accompanying drawings.

This invention relates to improvements in automatic gates for elevators; and it is especially designed to automatically open and close gates for freight-elevators, although it may also be used in connection with other kinds of elevators, if so desired.

The invention is carried out as follows, reference being had to the accompanying drawings, on which—

Figure 1 represents a plan view. Fig. 2 represents a front elevation; and Fig. 3 represents a longitudinal section, the upper part of the latter figure showing a modification of the invention.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

a represents the elevator-well.

b b represent floors in the building through which the well passes, as usual.

c is the elevator car or platform, with its uprights *c' c'* and horizontal beam *c''*, in the usual manner.

d is the rope or equivalent device by means of which the car *c* is raised and lowered, and *e e* are the stationary guides in the elevator-well *a* for the car *c*, in the ordinary way.

F represents the automatic self opening and closing gate, that is provided on its sides with projections or rollers *f f' f' f'*, as shown, which projections or rollers are guided in the grooves *g g*, made in the uprights of the gate-frames *G G*, and the said grooves are made vertical up to a place, *g'*, near their upper ends, where they are curved away from the elevator-well *a*, as shown in Fig. 3, for a purpose to be hereinafter described. On the gate *F*, toward the well *a*, are made a pair of teeth or projections, *h h*, having upper inclined faces, *h' h'*, as shown.

To the upper end of the car *c* are secured the

horizontal arms or supports *i i*, to the forward ends of which are hinged, at *k' k'*, the gate-lifters *k k*, as shown.

l is a cord or rope or chain, secured to the upper end of the gate *F*, and thence carried over the guide-pulleys *l' l'* to the balance-weight *m*, to which its other end is fastened. The balance-weight *m* is movable up and down in the box *o* during the up-and-down motion of the gate *F*.

n is a piston fitting loosely within the box *o*, which piston is secured in a suitable manner to the weight *m*; or it may be made in one piece with the same.

p is a perforation in the lower part of the box *o*, which is covered on the outside of said box with an air-outlet valve, *q*, as shown.

The operation of the invention is as follows: The gate *F* being made somewhat heavier than its balance-weight *m*, the former will remain in the closed position shown in the drawings when not acted on by the ascending car, and when the latter, in its upward motion, reaches the point shown in Fig. 3, its gate-lifters *k k* come in contact with the under sides of the gate-projections *h h*, by which the gate *F* is made to ascend with the car *c* until the upper rollers or projections, *f' f'*, on the gate *F* reach the curvatures *g' g'* in the upper end of the grooves *g g*, when the upper part of the gate *F* and its projections *h h* is tilted slightly away from the well *a*, sufficient to allow the gate-lifters *k k* to be disengaged from the gate-projections *h h*, when the gate will be released and allowed to descend gradually to its closing position, as shown in Fig. 2; and during the descent of said gate the balance-weight *m* and piston *n* are correspondingly raised in the box *o*, thereby producing a partial vacuum in said box *o* below the piston *n*, by which the gate is prevented from dropping down too suddenly onto its bearings. During the upward motion of the piston *n* and weight *m* the valve *q* remains closed and the air above the piston *n* passes gradually out through a small perforation, *r*, in the upper end of the box *o*. During the descent of the weight *m* and its piston *n* the air below them passes out through the lower valve-hole, *p*, and the air enters the upper part of the box *o* through the hole *r*.

When, during the descent of the elevator-car *c*, its gate-lifters *k k* reach the inclined upper faces, *h' h'*, of the gate-projections *h h*, said gate-lifters *k k* are automatically turned on their hinges *k' k'* by their contact with the stationary gate-projections *h h*, allowing the elevator-car *c* to pass freely downward without acting on the gate *F*.

The gate *F* may be raised by hand at any desired time during the descent of the car or otherwise, as may be desired; but as soon as the operator ceases to hold it up it will descend by its own gravity to its normal closed position, as shown in Fig. 2.

In the modification shown in the upper part of Fig. 3 the balance-weight is dispensed with in the box *o'* and a slotted opening, *o''*, made through its side, in which the bent piston-rod *n'* is movable during the up-and-down motion of the gate *F*, to which the said piston-rod is attached in its upper end, as shown, its lower end being provided with a piston or plunger, *n'*, loosely fitting within the box *o'*, as shown. *p'* is a valve-hole in the lower part of the box *o'*, and *q'* is an air-inlet valve covering the inside of said valve-hole *p'*, as shown.

The operation of said modification is as follows: During the first part of the descent of

the gate *F* it is allowed to fall freely by its own gravity until the piston *n'* reaches the lower end of the slot *o''*, when the air in the lower part of the box *o'* is compressed by the piston *n'*, and thus gradually retards the downward motion of the gate *F* until it finally comes to rest on its bearings.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

1. The herein-described automatic gate device for elevators, consisting of the gate *F*, with its projections or rollers *f f' f' f'* and projections *h h h' h'*, the grooves *g g'*, and the automatic gate-lifters *k k' k k'* on the elevator-car *c*, for the purpose set forth.

2. In combination with the gate *F*, its projections or rollers *f f' f' f'* and projections *h h'*, the grooves *g g'*, and gate-lifters *k k'*, the air-box *o*, with its weight *m*, piston *n*, valve *q*, openings *p r*, and cord *l*, or their equivalents, as and for the purpose set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

GEORGE WOODS.

Witnesses:

ALBAN ANDRÉN,
HENRY CHADBURN.