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Patented Feb. 18, 1902.

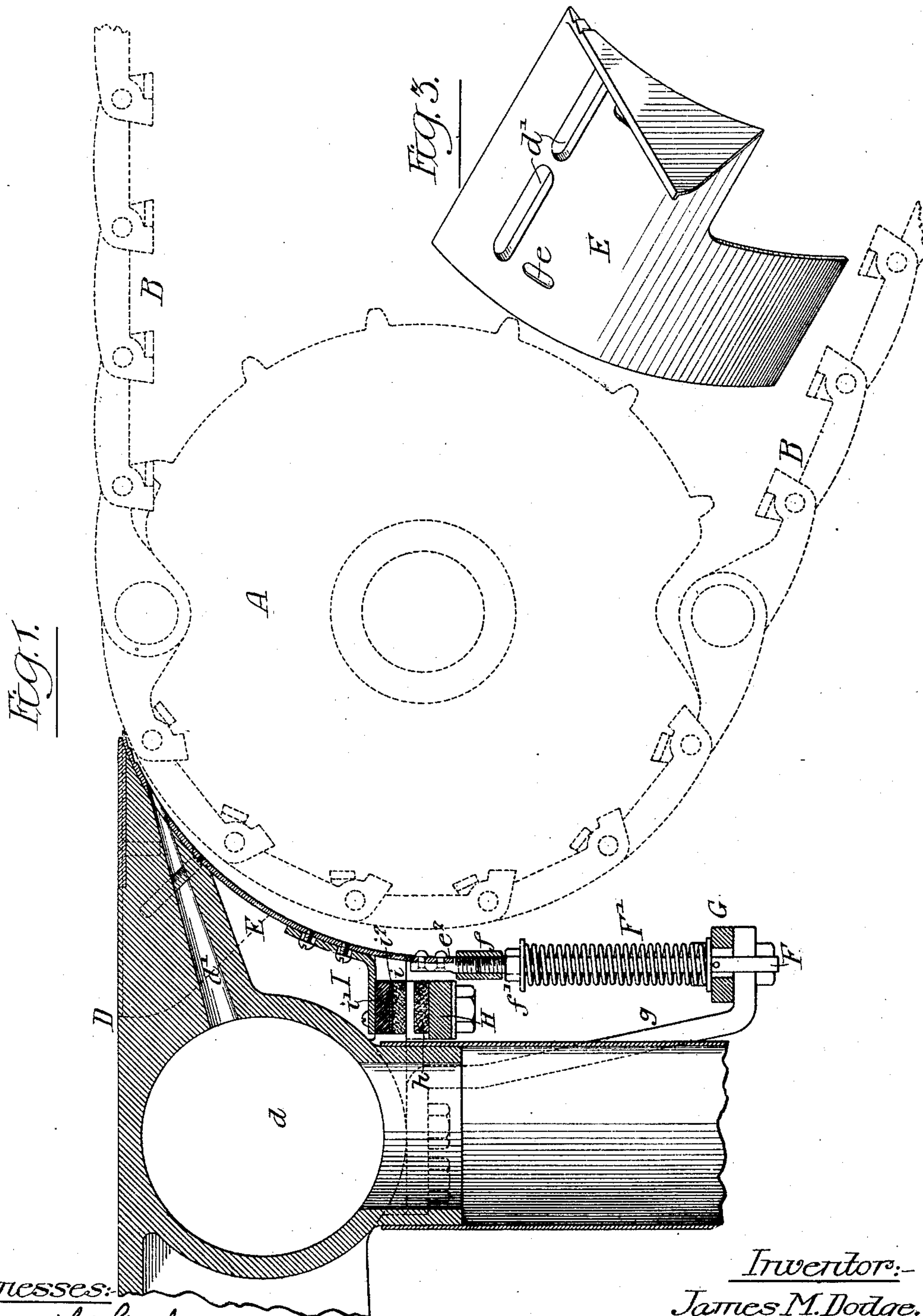
J. M. DODGE.

STAIR LIFT.

(Application filed Oct. 26, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

Frank L. A. Graham.
Herman E. Metius.

Inventor:-

James M. Dodge.

by his Attorneys:

Howson & Howson

UNITED STATES PATENT OFFICE.

JAMES M. DODGE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE
STAIR LIFT COMPANY, OF CAMDEN, NEW JERSEY, A CORPORATION OF
NEW JERSEY.

STAIR-LIFT.

SPECIFICATION forming part of Letters Patent No. 693,789, dated February 18, 1902.

Application filed October 26, 1901. Serial No. 80,117. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. DODGE, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Stair-Lifts, of which the following is a specification.

My invention relates to certain improvements in stop-motion mechanism used in connection with stair-lifts or moving platforms
10 or stairways.

The object of my invention is to provide means for stopping the movement of the stair-lift or moving platform the moment any material should be drawn in between the
15 moving portion and a fixed platform. This object I attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of
20 sufficient of the head of a stair-lift to illustrate my invention, the moving portion being shown by dotted lines. Fig. 2 is a transverse view of the fixed platform and the stop-motion mechanism with the moving portion
25 of the stairway removed, and Fig. 3 is a perspective view of one of the end stop-motion plates.

A is the head-wheel of the stairway.

B is the endless-belt conveyer, made up in
30 the present instance of a series of links coupled together, which can be so flexed as to form steps and risers on the inclined elevating-run of the stair-lift.

It will be understood that I do not limit
35 myself to any particular form of endless-belt conveyer, whether it is a moving stairway or simply a moving inclined plane, and my invention may be used in connection with a moving horizontal platform, if desired.

40 D is the fixed platform at the head of the stair-lift. The front of this platform is curved to conform to the curve of the head-wheel. In the present instance below the platform is a transverse air-duct *d*, connected to air-passages *d'*, so that a blast of air
45 can be forced out between the platform and the moving portion of the stairway. This construction of air-blast apparatus is fully covered in the patent granted to me on the
50 16th day of April, 1901, No. 672,359, and the

particular form of conveyer used is also covered by the patent granted to me on the 12th day of December, 1899, No. 639,154.

Heretofore it was deemed sufficient to make a neat joint between the moving portion of
55 the stair-lift and the platform or to provide an air-blast device for preventing light material, such as lint and strings, entering the space between the moving portion and the platform; but in order to prevent any acci-
60 dent to a person being carried by the moving stair-lift I provide a stop-motion which will stop the movement of the conveyer as soon as any foreign matter gains access to the
65 space between the fixed platform and the conveyer. I mount in this space, which is very narrow, a curved plate E, having one or more grooves cut in the surface near the upper edge adjacent to the moving portion of
70 the stair-lift to form ribs or projections, so that if anything should pass the end of the curved plate it will be caught by the ribs, and as the moving portion forces the particle in it will cause the plate to move down against the pressure of a spring. 75

Instead of making a single plate extending from one side of the stair-lift to the other I preferably make the stop-motion plate in sections, as illustrated in Fig. 2, and form guide-slots *e* in the several sections, through which
80 pass the screw-bolts *e'*, which hold the plates in position against the fixed platform, and secured to the lower edge of each section is a screw-threaded lug *e''*, which is connected to a rod F by a union *f*, and this rod is screw-
85 threaded and on the screw-threaded portion is a nut *f'* and a washer. A spring F' is mounted between the washer and a bar G, supported by brackets *g*, so that when any one of the series of plates moves down its
90 spring is compressed, but the plate will be immediately returned by the spring as soon as relieved, so that it will remain in its normal position, as shown in Fig. 1.

Secured to the fixed portion of the stair-lift
95 is a plate H, having at intervals carbon contact-pieces *h*, and directly above each contact-piece is a bracket I, which is secured to the plate E, and each of these brackets carries a carbon contact-plate *i*. A piece of non-
100

conducting material i' is placed between the carbon plate and the bracket. The plate H forms one terminal of an electric circuit, while metallic plates i^2 , placed between the carbon contact i and the non-conducting backing i' , form the other terminal of the electric circuit. On the plate H is a binding-post h' , and also on the plate is a binding-post i^3 . This binding-post, however, is insulated from the bar H and is connected to the several plates i^2 . The two carbon contacts are so adjusted in respect to each other that on the downward movement of the curved plate E the carbon block carried thereby will be brought into contact with the fixed carbon block carried by the bar H.

The wires leading from the two binding-posts mentioned above can be coupled to an electric clutch or any other suitable electric mechanism which will stop the movement of the moving portion of the stair-lift. This apparatus is not shown, as it will be understood that any mechanism now in use may be adopted.

It will be seen that if a person being conveyed on a moving stair-lift should by any accident have any portion of the garments caught by the stair-lift and dragged in between the fixed platform and the moving portion of the stair-lift the moment the material comes in contact with the stop-motion plate E the plate will be forced down against the pressure of the springs and the two contact-blocks will come together and complete the electric circuit and immediately stop the movement of the stair-lift. I prefer to extend the end stop-motion plates E around the ends of the platform, as shown in Figs. 2 and 3, and vertical grooves are cut in the end portion to form ribs, so that if a portion of a garment should by accident be caught at the edge of the stair-lift and be drawn in between the side of the platform and the moving portion of the stair-lift it would also act upon the plate and cause the stop-motion to act to stop the moving mechanism.

It will be understood that the details of construction may be varied without departing from the main feature of my invention, which is to provide means at the point where the moving portion of a stair-lift or platform passes the fixed platform or other fixed portion of the stair-lift.

I claim as my invention—

1. The combination of a moving stair-lift or platform, the fixed portion of the stair-lift such as the fixed platform, with a movable stop-motion device mounted between the moving portion and the fixed portion, said stop-motion device being adapted for connection with means for stopping the movement of the moving portion when the stop-motion device is actuated, substantially as described.

2. The combination of the moving stair-lift or platform, a fixed platform, a plate mounted between the moving stair-lift and the fixed platform, electric contact-plates so mounted

as to be moved into contact when the stop-motion plate is forced down, substantially as described.

3. The combination of the carrying portion of a moving stair-lift, a platform, a curved stop-motion plate mounted between the fixed platform and the moving portion of the stair-lift, a spring for holding the plate in its normal position, a contact-block carried by the fixed portion of the machine, and a contact-block carried by the stop-motion plate, the terminals being adapted for connection with a stop mechanism controlling the movement of the moving portion of the stair-lift, substantially as described.

4. The combination of a moving stair-lift or platform, a fixed platform, a stop-motion plate mounted between the fixed platform and the movable portion of the stair-lift, and a side stop-motion plate at the side of the fixed platform, substantially as described.

5. The combination of a moving stair-lift or platform, a fixed platform, a series of stop-motion plates, each independently supported between the fixed and moving portions, substantially as described.

6. The combination of a moving stair-lift or platform, a fixed platform, a stop-motion plate mounted between the fixed and movable portions, said plate having ribs or projections on its face next the moving portion, substantially as described.

7. The combination of a moving stair-lift or platform, a fixed platform, a series of curved stop-motion plates mounted between the moving portion and the fixed portion, each plate being independently supported and having ribs or grooves in its face next the moving portion, substantially as described.

8. The combination of a moving stair-lift or platform, a head-wheel therefor, a fixed platform at the head-wheel, a stop-motion plate between the fixed and moving portions, a spring tending to keep the plate in its normal position, a bracket on said plate, a contact carried thereby, a fixed bar, and a contact thereon in line with the contact of the plate, substantially as described.

9. The combination of a moving stair-lift or platform, a head-wheel therefor, a fixed platform at the head-wheel, a stop-motion plate between the fixed and moving portions, ribs thereon, a spring tending to keep the plate in its normal position, a bracket on said plate, a contact carried thereby, a fixed bar, a contact thereon in line with the contact of the plate, and means for holding the stop-motion plate to the fixed platform, substantially as described.

10. The combination of a fixed platform having a curved face, a head-wheel, a conveyer arranged to pass around said head-wheel in close proximity to the fixed platform, a series of curved stop-motion plates arranged to slide on the fixed platform between the conveyer and said platform, a rod adjustably secured to each plate, a spring mounted on

the rod, a fixed bar on which the spring rests, a fixed plate, contacts thereon, a bracket on each stop-motion plate, and contacts thereon in line with the fixed contacts, substantially
5 as described.

11. The combination of a fixed platform, a head-wheel and a conveyer, a stop-motion plate arranged to slide on the fixed platform between it and the conveyer, an air-blast pipe
10 at the fixed platform, passages leading from

said pipe, and openings in the stop-motion plates in line with the passages, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of 15 two subscribing witnesses.

JAMES M. DODGE.

Witnesses:

WILL. A. BARR,
JOS. H. KLEIN.