Jan. 8, 1935. A. L. SPRECKER 1,987,272

WEIGHT CONTROL ESCALATOR

Filed Oct. 4, 1933

FIG. 1.

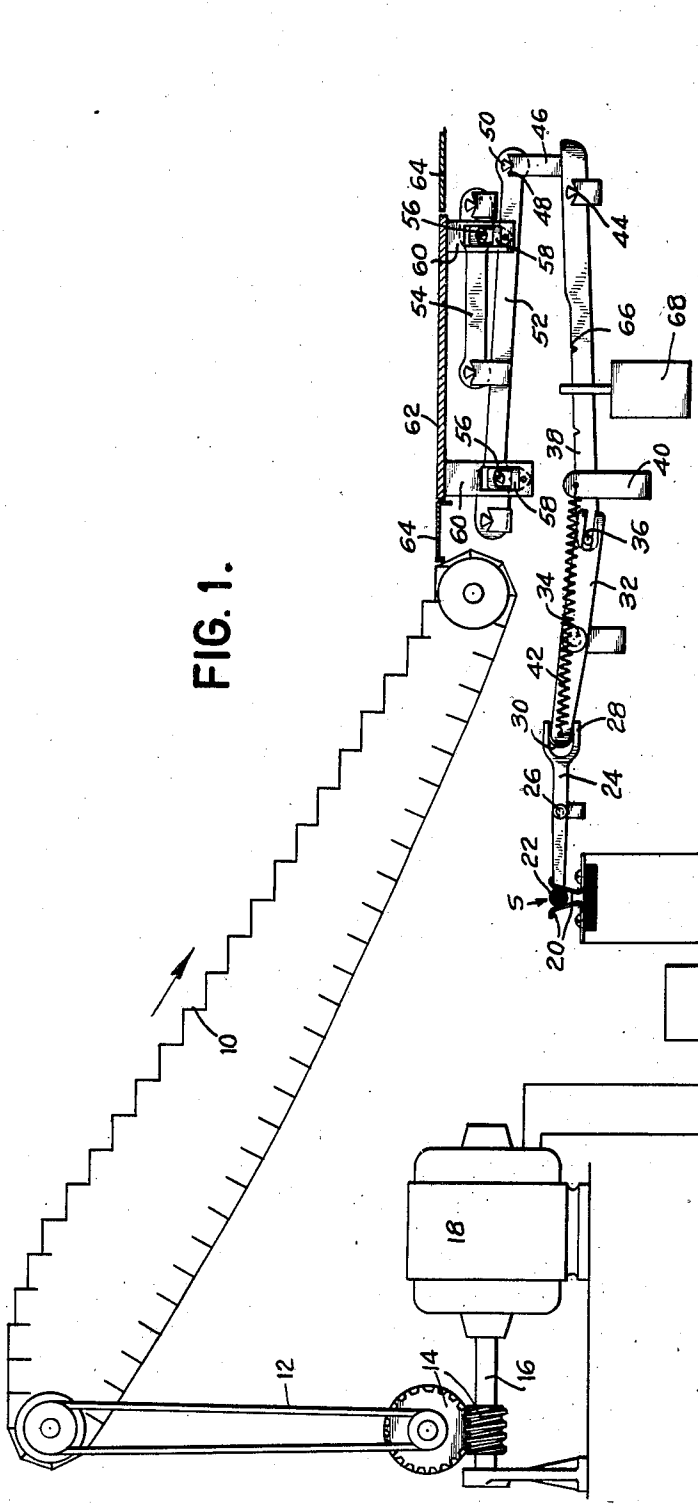
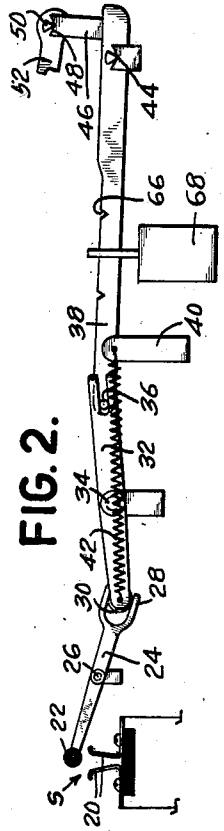


FIG. 2.



INVENTOR
Alfred L. Specker
BY
W. M. Wilson
ATTORNEY

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WEIGHT CONTROL ESCALATOR

Alfred L. Sprecker, Freeport, Long Island, N. Y., assignor to International Business Machines Corporation, New York, N. Y., a corporation of New York

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1 Claim. (Cl. 198—16)

This case relates to means for preventing jams and large crowds forming at the ends of an escalator.

In department stores or similar places, particularly at special sales and holiday rushes, crowds are apt to form at the ends of an escalator, and as the escalator discharges more and more people into the crowd, it becomes so large and unwieldy that proper flow of traffic through the store is impeded and serious personal injuries may be caused should any situation arise to create a feeling of hysteria or panic in the crowd.

The object of this invention is to provide means for measuring the degree of crowding at the end of an escalator and governing operation of the escalator with its attendant discharge of people accordingly.

More specifically, the object is to provide such crowd measuring means in the form of weighing mechanism for automatically controlling movement of the escalator in accordance with the weight of the people standing within a prescribed area of flooring adjacent the end of the escalator.

Various other objects and advantages of my invention will be obvious from the following particular description of one form of mechanism embodying the invention or from an inspection of the accompanying drawing, and the invention also constitutes certain new and novel features of the construction and combination of parts hereinafter set forth and claimed.

In the drawing:

Fig. 1 is a semi-diagrammatic view of the escalator and its control, and

Fig. 2 is a detail of the control for the escalator showing it in a different position than in Fig. 1.

In detail, the escalator 10 is driven by a belt 12 connected through gearing 14 to motor shaft 16 of motor 18. The circuit for the motor includes a switch S comprising spring blades 20 adapted to be conductively connected in series by a metal-faced roller 22 which is on the forward end of a lever 24 pivoted at 26. At its rear end, lever 24 is forked to provide tines 28 between which is located a roller 30 on the forward end of a lever 32 pivoted at 34 and also forked at its rear end to receive a pin 36 on a weighing lever 38. Connecting the forward end of lever 32 and a fixed standard 40 is a coil spring 42, the tendency of which is to move lever 32 once it passes a mid-way position to its extreme clockwise or counterclockwise position. Weighing lever 38 is of the first order, fulcrumed at 44 and has the rear arm provided with an upright 46 formed with a V-bearing 48 at its upper end to receive the knife edge 50 of a long third order lever 52, which in turn is similarly pivotally connected with a short third order lever 54. Both levers 52 and 54 have knife edges 56 for supporting the links 58 connected to legs 60 of platform 62 which is a section of the floor 64 at the foot of the escalator 10.

The forward arm of weighing lever 38 has notches 66 any of which may locate a hanging counterweight 68 which thus constitutes an adjustable load counterbalance of the weighing mechanism. If the number of people standing on platform 62 is within the desired limit as measured by a maximum prescribed weight, then counterweight 68 is not overbalanced and the lever 38 does not move.

When the weight of the crowd on platform 62 becomes greater than the prescribed limit, levers 52 and 54 are depressed and lever 52 exerts a force on lever 38 overcoming the resistance of counterweight 68 and rocking lever 38 clockwise. As the lever 38 rocks clockwise, its pin 36 turns lever 32 counterclockwise and lever 32 through roller 30 rocks lever 24 clockwise from its normal position in Fig. 1. When during counterclockwise movement of lever 32, it passes its mid-way point, the spring 42 snaps the lever all the way to the position shown in Fig. 2. Consequently the lever 24 has its roller 22 completely disengaged from between blades 20 of switch S and the motor circuit is opened, stopping operation of motor 18 and of the escalator 10 actuated thereby. The escalator will now no longer be discharging people onto the platform 62 and into the space adjacent the platform so that if the foot of the escalator is jammed with too great a crowd, the condition will not be aggravated by further discharge of people into the jam but will be remedied by permitting the crowd to dissipate in the normal flow of traffic through the stores.

As soon as the jam at the foot of the escalator becomes lessened, the weight on platform 62 is insufficient to overcome the force of counterweight 68 which thereupon rocks lever 38 counterclockwise, which in turn rocks lever 32 clockwise, and through the latter rocks lever 24 counterclockwise, reinserting roller 22 between blades 20 to close switch S and reestablish the motor circuit for re-starting the escalator 10.

In above manner, the crowd at the foot of a descending escalator is weighed and if too large the escalator automatically stops to prevent continued discharge therefrom of more people into the crowd.

In a similar manner, the crowd at the head of an ascending escalator may be weighed to regulate operation of the escalator.

The form of escalator or the driving connections may be changed without departing from the basic thought of the invention which is to weigh the crowd at the end of an escalator or the like and stop or continue operation of the latter depending on whether the crowd is too large or not and thereby regulate the traffic adjacent the end of the escalator. The invention is applicable wherever an escalator, conveyor, or elevator is used and not only to prevent overcrowding of an area by people but also the overloading of flooring by goods transported through the conveyor or the like.

While there has been shown and described and pointed out the fundamental novel features of the invention as applied to a single modification, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention. It is the intention therefore to be limited only as indicated by the scope of the following claim.

What is claimed is as follows:

A device for regulating operation of the conveyor to regulate the traffic of goods or persons at one end of the conveyor, comprising a floor in line with said end of the conveyor and over which general traffic flows in addition to the traffic from the conveyor, said floor including a depressible section in the general plane of the floor and located immediately adjacent said end of the conveyor to directly receive the discharge of traffic from the conveyor, weighing mechanism for supporting said floor section including a load counterbalance for resisting operation of the weighing mechanism under the weight of traffic on said floor section, an actuator for operating said conveyor and controlling means for said actuator operated by said weighing mechanism in accordance with the weight of both the general and the conveyor traffic on said floor section to regulate operation of the actuator and thereby regulate the degree of crowding of the traffic at said end of the conveyor.

ALFRED L. SPRECKER.