H. S. HENDRICKS.

CONTROLLER FOR CONVEYING MECHANISM.

APPLICATION FILED JUNE 23, 1921.

1,438,112. Patented Dec. 5, 1922.

2 SHEETS—SHEET 1.

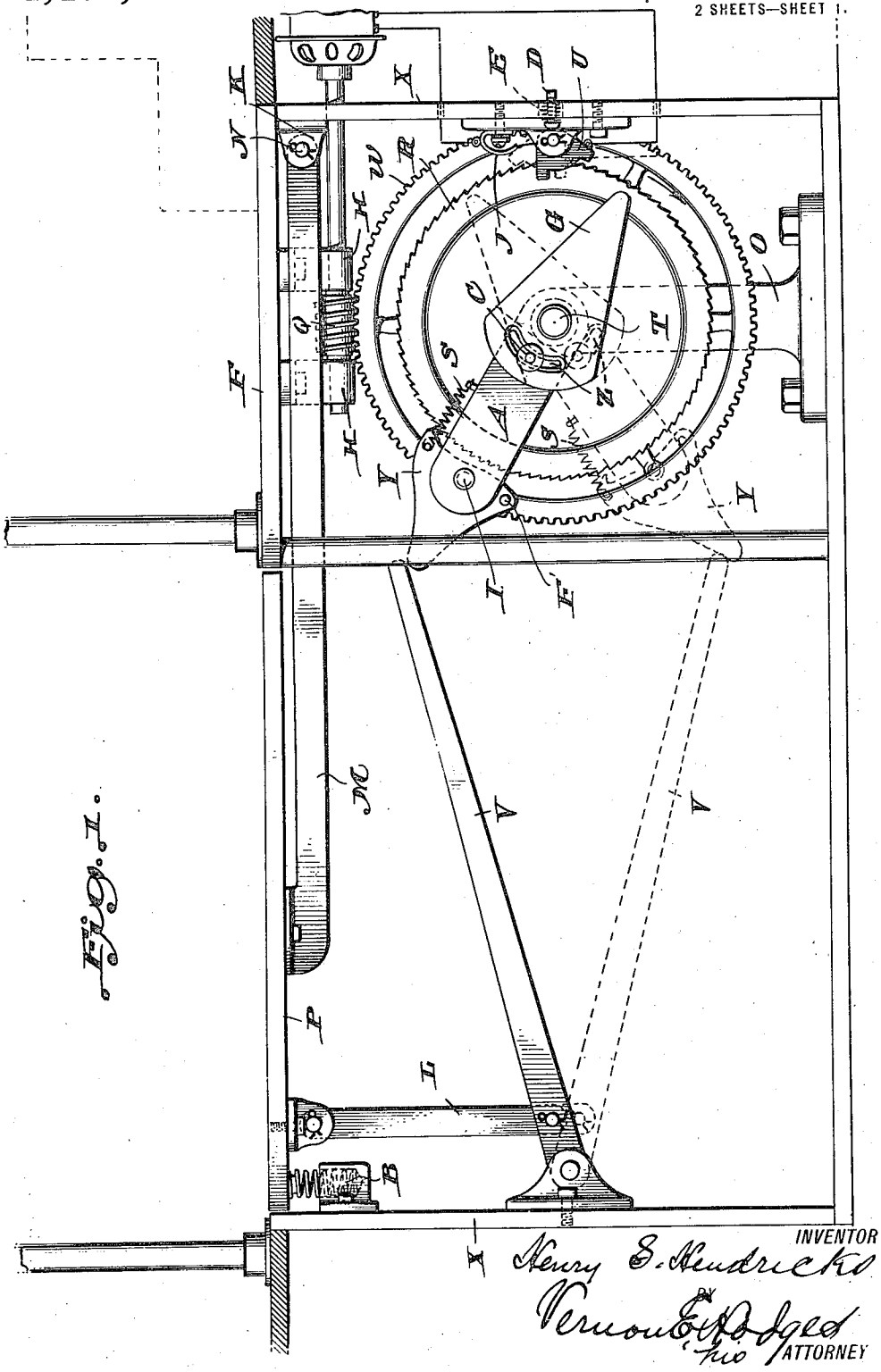


Fig. 1.

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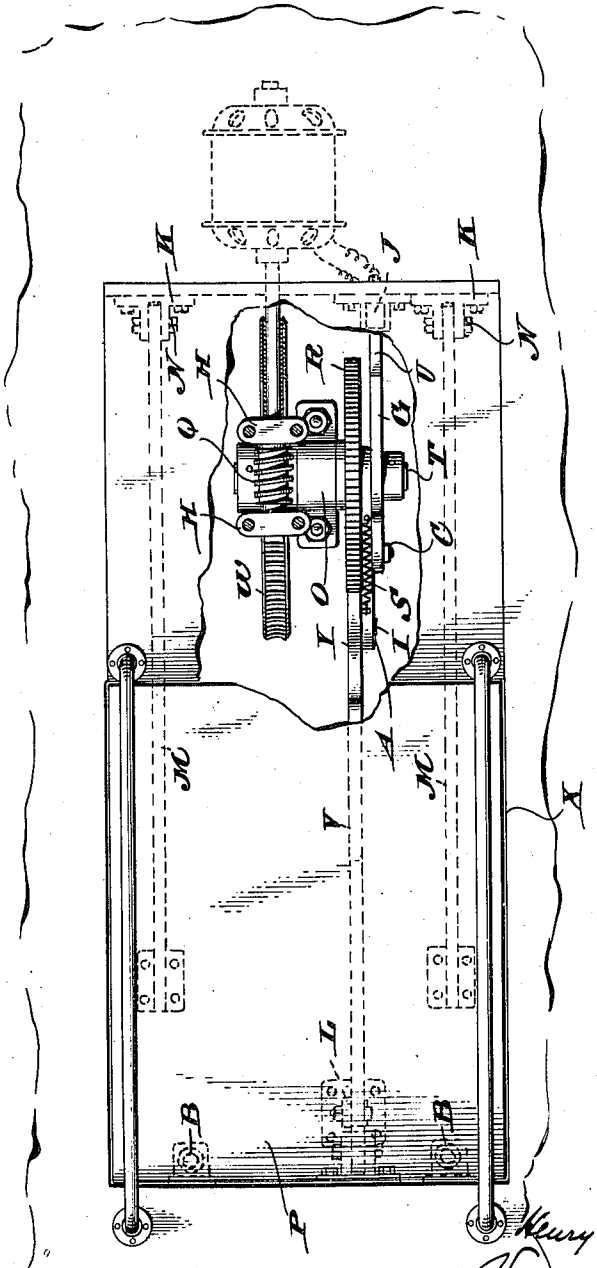
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2 SHEETS—SHEET 2.

Fig. 2



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UNITED STATES PATENT OFFICE.

HENRY S. HENDRICKS, OF NEW YORK, N. Y., ASSIGNOR OF ONE-THIRD TO ROSALIE NATHAN HENDRICKS, OF NEW YORK, N. Y., AND ONE-THIRD TO ROBERT E. NAUMBERG, OF WINCHESTER, MASSACHUSETTS.

CONTROLLER FOR CONVEYING MECHANISM.

Application filed June 23, 1921. Serial No. 479,905.

To all whom it may concern:

Be it known that I, HENRY S. HENDRICKS, residing at New York city, in the county of New York and State of New York, a citizen of the United States, have invented certain new and useful Improvements in Controllers for Conveying Mechanism, of which the following is a specification.

My invention relates to an improvement in controllers for conveying mechanism.

The object of my invention is to provide automatic control to supply and cut off electric power from moving stairways and other conveying machinery, in such a way as to eliminate the waste of electric current when the stairway or other conveying machinery is not in actual use.

I will describe specifically how my invention may be used in connection with a moving stairway, inclined elevator or escalator. However, I do not limit myself to this use of my device, as it can be applied with little or no modification to any kind of moving platform, belt or other conveying machine, whether intended to carry passengers or other loads.

In the case of a moving stairway, the controller is preferably situated under the floor, a short distance from the bottom of the moving stairway.

In the accompanying drawings:

Fig. 1 is a view in perspective;

Fig. 2 is a plan view.

The entrance to the stairway is arranged so that all persons must pass over a movable platform P, which becomes slightly depressed by the weight of a person stepping upon it, thus constituting a trip. Under the platform P is the controller box H, secured to the fixed platform F.

The tilting platform P is supported by the arms M, M, hinged by means of the pins N, N, to brackets K, K, fastened to the box X.

When platform P is depressed by the weight of a person approaching the stairway, the link L transmits the motion to the lever V, in such a way as to magnify the amount of motion, as shown.

The support O, holds a rotatable shaft T, on which are rigidly mounted the worm-gear W, and the ratchet wheel R. Mounted loosely on the shaft T are the arm A and the finger G adjustably connected by a set-screw C fastened to arm A and acting in curved slot Z, which allows the angle between A and G to be varied at will.

On the arm A is a pawl Y, supported by a pin I, and held against ratchet wheel R by means of a tension spring S. An electric switch U is mounted on the wall of the box X in such a way as to be turned on and off by the motion of finger G.

The spring contact J is insulated from the rest of the machine, and one wire runs from J to the electric motor which drives the moving stairway. The other wire is grounded anywhere on the machine, or attached to the switch as shown. When the switch U is pushed up by the finger G, it makes contact with contact J, closing the circuit, and starting the electric motor, while pushing switch U down away from spring contact J will break the circuit and stop the motor.

A plunger D and spring E tend to hold the switch, either in the "on" or "off" position. The motor drives the worm Q (supported by the bearings H, H) and drives worm-wheel W.

The operation of my invention is as follows:—A person approaching the stairway steps on platform P, and his weight depresses it. The motion of the platform is magnified by lever V, actuated by link L, pivotally connected with both the platform and lever.

Lever V strikes pawl Y, stretches spring S, drawing the point of pawl Y away from ratchet wheel R, until stop F strikes arm A.

Then lever V causes arm A and pawl Y to swing down, as shown in dotted lines.

As arm A swings down finger G (which is held tightly to A by means of the set-screw C) swings up, causing switch U to come in contact with spring contact J, thus closing the electric circuit, and automatically starting the motor which sets the moving stairway in motion, and also drives worm Q, which drives worm wheel W, shaft T, and ratchet wheel R, clockwise, as shown.

When the weight of the person is removed from platform P, the springs B, B raise it to its normal position, lifting lever V also, thus restoring the latter to its normal position, as shown in full lines in Fig. 3. As soon as lever V is removed from pawl Y, the spring S pulls Y against ratchet-wheel R. As wheel R revolves very slowly, it lifts arm A and pawl Y, and finger G swings

down until it again strikes switch U, this time breaking the circuit and stopping the motor.

Set-screw C is so adjusted in slot Z that the interval from the time that finger G makes the circuit, until finger G breaks the circuit, is just sufficient for the moving stairway to carry its passenger from his starting point to his destination.

If several people step on the platform P, one right after the other, the switch U will be closed, as described before, but each time a person steps on P the lever V will push Y to its lowest position, and it must start climbing all over again. The result is that the finger G will not cause V to break the circuit until the last passenger to step on the platform P has reached his destination.

I claim:

1. The combination with a conveyor, of a movable trip adapted to receive a load and be moved thereby, whereby to start the conveyor and means for automatically stopping the latter at a predetermined time after the load shall have been removed from the movable trip.

2. The combination with conveying mechanism, of a controller including a platform, which constitutes a trip, a lever actuated thereby, a shaft, an electric motor for driving the shaft, a switch, and means carried by the shaft in position to be actuated by the lever and for operating the switch, whereby to make and break a circuit through the motor.

3. The combination with conveying mechanism, of a controller including a movably mounted platform, which constitutes a trip, a shaft, an electric motor for driving said shaft, an electric switch and circuit, means for actuating the switch for controlling the motor, and means connected with the platform for actuating said first-mentioned means when weight is applied to the platform.

4. The combination with conveying mechanism, of a controller including a movable platform, which constitutes a trip, an electric motor, a shaft, means for transmitting motion from the motor to the shaft, a ratchet-toothed wheel carried by the shaft, an arm, a finger loosely mounted on the shaft, said arm and finger adjustably connected together, a spring-actuated pawl carried by the arm adapted to engage the teeth of the ratchet-wheel, an electric switch in position to be actuated by the finger to make and break the electric circuit to the motor, and means connected with the platform for engaging the pawl whereby to close the circuit and set the motor in operation.

5. The combination with a moving stairway, of a movable platform, a lever connected therewith and actuated thereby, a shaft, a motor, means for transmitting the motion of the motor to the shaft, an electric switch for controlling the motor, and means carried by the shaft in position to be actuated by the lever to actuate the switch to automatically close the circuit through the motor when the platform is moved from its normal position, and for actuating the switch to break the circuit whenever the stairway shall have carried the last passenger to his destination.

In testimony whereof I hereunto affix my signature.

HENRY S. HENDRICKS.