

R. C. GALLINANT.
SAFETY APPLIANCE FOR RAILWAY PLATFORMS.
APPLICATION FILED MAY 29, 1912.

1,050,937.

Patented Jan. 21, 1913.

3 SHEETS—SHEET 1.

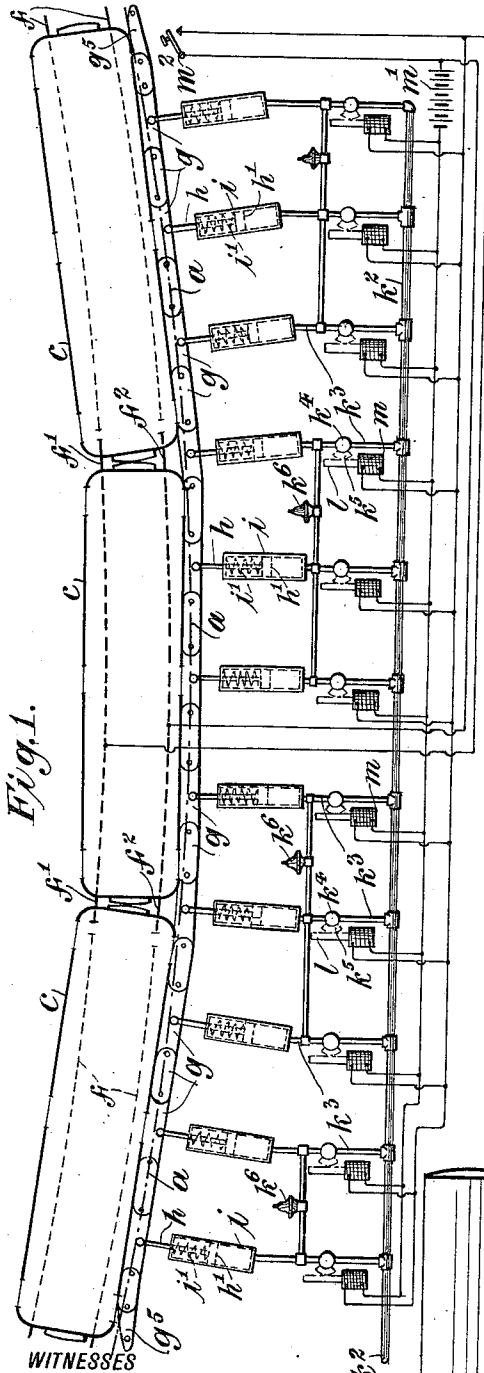
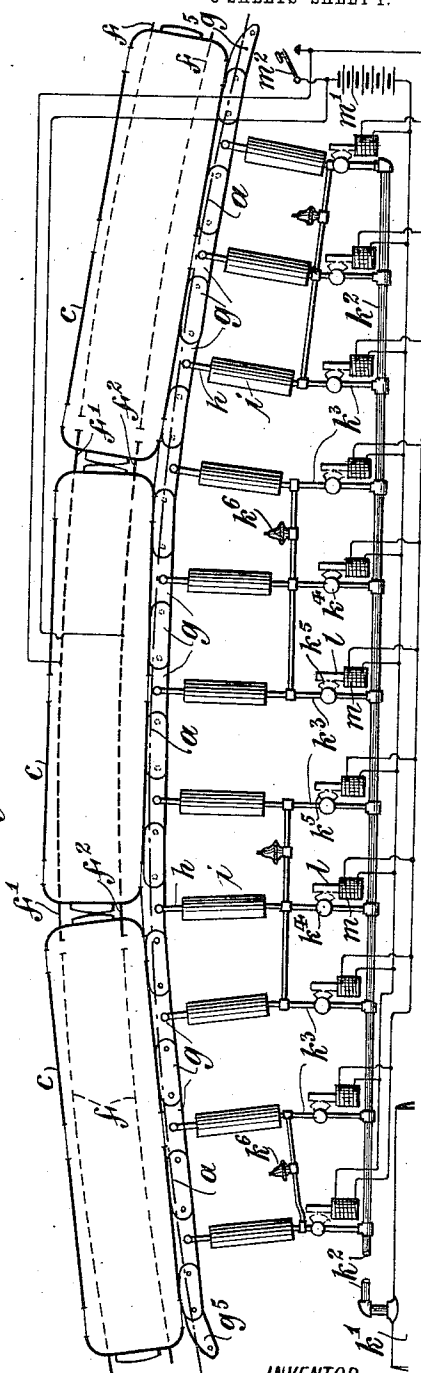


Fig. 1.

WITNESSES

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Fig. 2.



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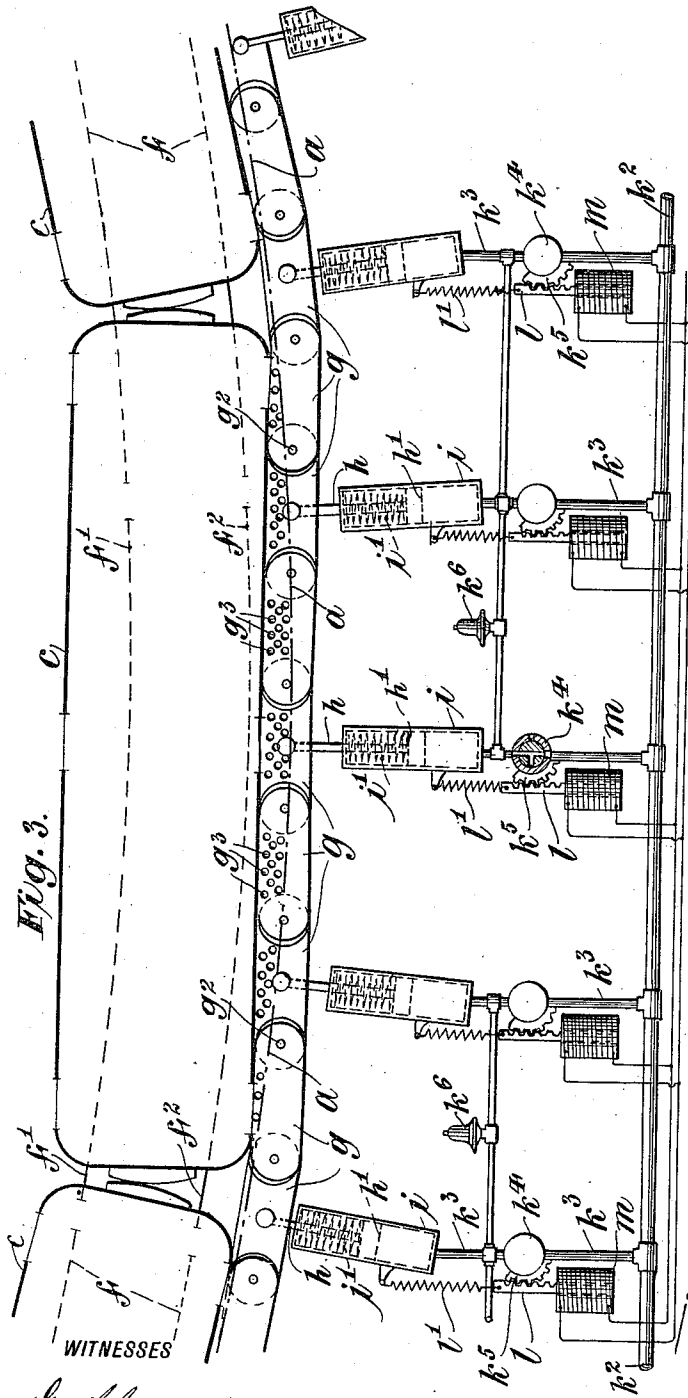


Fig. 3.

WITNESSES

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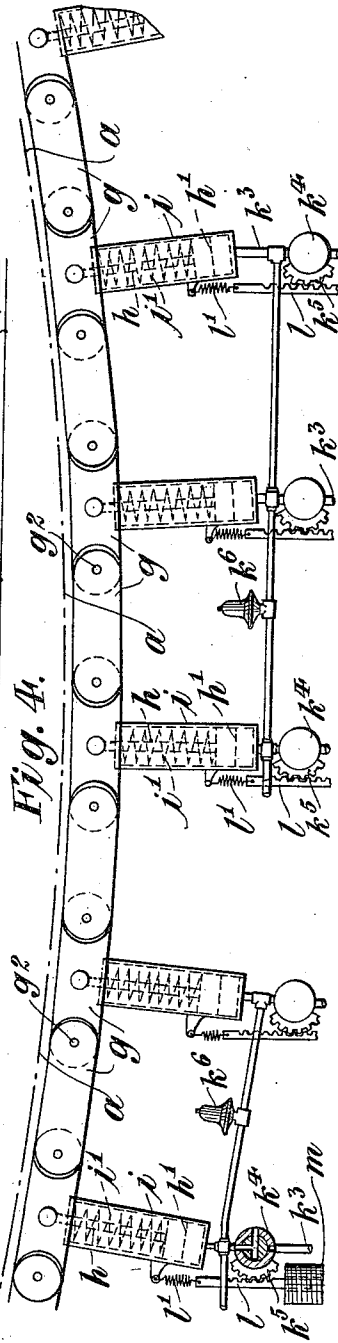


Fig. 4.

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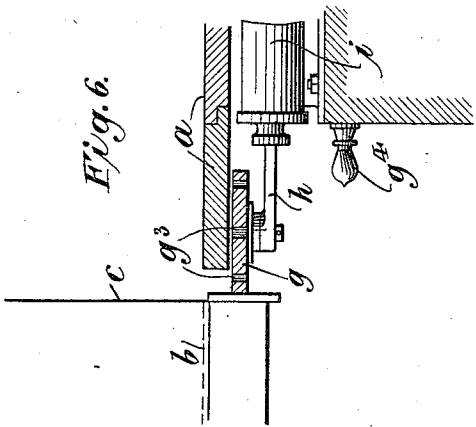


Fig. 6.

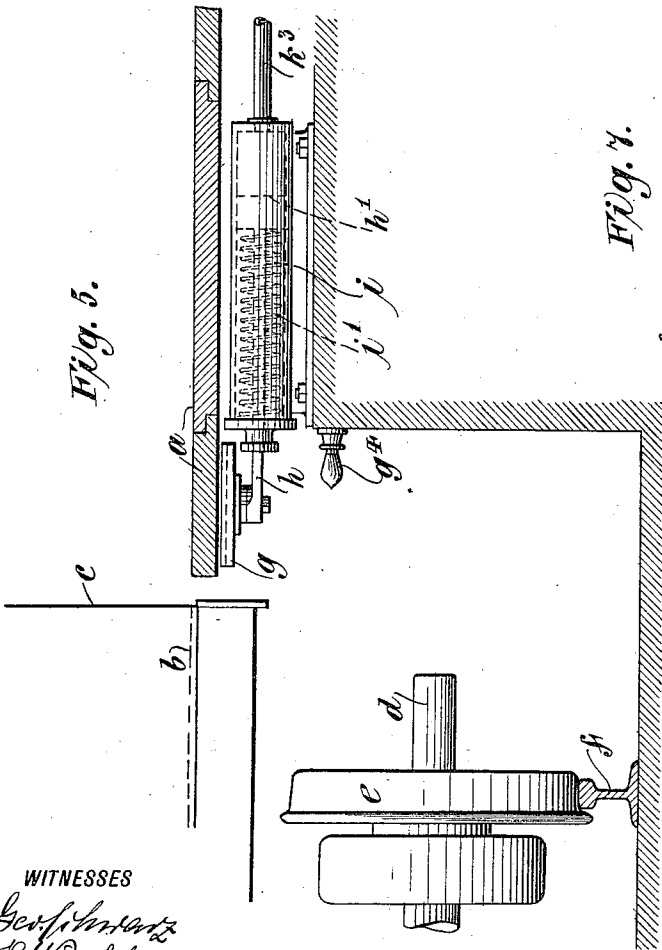
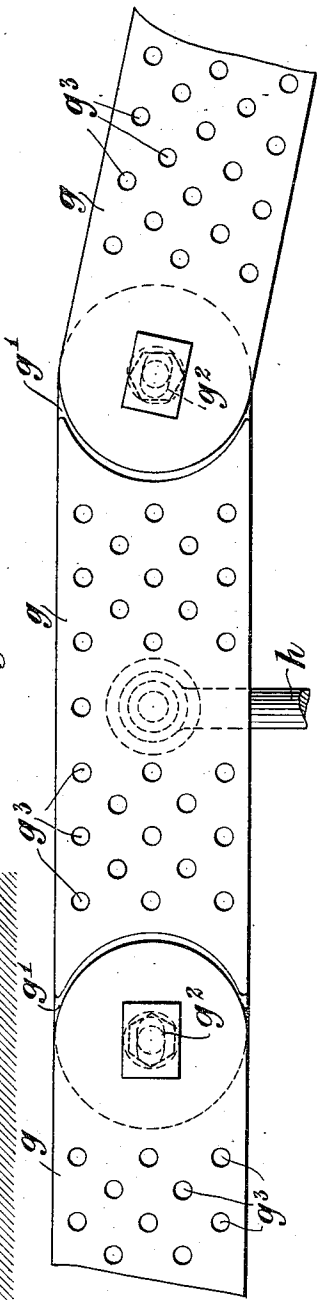


Fig. 5.

Fig. 4.



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SAFETY APPLIANCE FOR RAILWAY-PLATFORMS.

1,050,937.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, RAPHAEL C. GALLINANT, a citizen of the United States, residing in Ridgefield Park, Bergen county, State of New Jersey, have invented certain new and useful Improvements in Safety Appliances for Railway-Platforms, of which the following is a specification, reference being had to the accompanying drawings, which form a part hereof.

When railway station platforms are at the same or approximately the same level as the car platforms, and when such platforms are on a curve, either concave or convex, it becomes of great importance to the safety of passengers that adequate provision shall be made for guarding against the falling of passengers through the space which may be left between the car platform and the station platform. Various attempts have been made to meet this need. It has been proposed to place beneath each car end platform a movable platform which is projected by the guard when the train comes to rest, but this is not satisfactory in practice and moreover cannot well be applied below center doors. It has also been proposed to provide, under the edge of the station platform, at intervals which correspond to the length of the car, movable platforms which are projected by a station attendant, but these involve delay in train service and are otherwise unsatisfactory.

It is the object of this invention to provide means for the accomplishment of the desired purpose which shall involve no delay in train service, shall be projected and withdrawn readily either under the control of a station attendant or of automatic means, shall be practicable for use with cars having center doors as well as end doors, shall not be liable to injury by the movement of trains even though, through carelessness of the station attendant, they are not projected or withdrawn at the proper time, and may still close the space between the edge of the station platform and the car doors, even after the train has started.

In accordance with the invention there is mounted below the edge of the station platform a flexible or sectional platform or guard which extends for the entire length of the platform, or of so much of it as may be required, while each section is relatively short; yielding means are provided for projecting the flexible or sectional platform

from the station platform toward the cars and for causing it to retire from the cars below the station platform, so that, while the entire guard platform is moved toward or from the cars or the position usually occupied by the cars, the movement of each section is limited by contact with the body of the car. The guard platform therefore adapts itself to the position of the car or of each car with respect to the edge of the station platform and the space between each end door or each side or center door and the station platform is bridged completely whether the car happens to stop in one position or another and whether the curve be concave or convex.

The invention will be more fully explained hereinafter and the various advantages incident to its use will be pointed out with reference to the accompanying drawings in which it is illustrated as embodied in a suitable form and in which—

Figure 1 is a top view illustrating somewhat diagrammatically the application of the invention to a station platform on a concave curve. Fig. 2 is a similar view illustrating the application of the invention to a station platform on a convex curve. Fig. 3 is a partial view similar to Fig. 1 but on a somewhat larger scale, illustrating more clearly some details of construction, the guard platform being shown as in operative relation with respect to a train of cars. Fig. 4 is a view of some of the parts shown in Fig. 3, but representing the guard platform as withdrawn. Fig. 5 is a view in vertical, transverse section showing the relation of the guard platform to the station platform and a car, portions of the station platform and the car being shown, while the guard platform is represented as withdrawn below the station platform. Fig. 6 is a partial view similar to Fig. 5 but showing the guard platform projected toward the car to close the space between the edge of the station platform and the car. Fig. 7 is a top view showing a portion of the guard platform.

In the drawings the station platform, indicated at *a* in Figs. 5 and 6, is represented as supported at approximately the same level as the floors *b* of the car bodies *c*, the latter being mounted as usual upon trucks which comprise through axles *d* and wheels *e* which travel upon rails *f*.

The guard platform consists of a series of

short guard platforms or sections g which are flexibly connected, being preferably formed with suitably recessed, overlapping ends, as clearly shown at g' in Fig. 7, loosely pivoted together, as at g^2 , so as to permit the several sections to have some slight relative longitudinal movement in order that they may accommodate themselves to different positions on a curve. As the guard platform is intended not so much as a platform to support the passengers as a guard to prevent passengers from falling into the space between the station platform and the cars, each section g is preferably perforated, as shown at g^3 , so as to permit light from lamps g^4 to shine up through the guard platforms and warn passengers to step from the station platform to the car platform or vice versa rather than to remain standing on the guard platform.

It is not necessary that means for moving the guard platform shall be applied to each section thereof. It is sufficient that such means be applied to each alternate section since the intermediate sections are carried by and moved with the alternate sections and adapt themselves to the relative positions of the alternate sections. Various means might be employed for moving the guard platform under the control either of a station attendant or of automatic devices. In the embodiment of the invention illustrated in the drawings, each alternate section is shown as pivotally mounted at its center upon the end of a piston rod h which carries at its other end a piston h' within a cylinder i which is mounted in a suitable space therefor immediately below the floor a of the station platform. The piston may be actuated by any convenient fluid under pressure but preferably by air under pressure and it may be moved in either direction by the air pressure. As shown in the drawings the air pressure is applied behind the piston to move the guard platform outward, away from the station platform toward the car, and a spring i' is placed in the cylinder, bearing at one end against the other side of the piston and at the other end against the cylinder head, to return each piston and the corresponding portion of the guard platform to its normal position below the floor of the station platform when the air pressure behind the piston is relieved. In the arrangement shown it is assumed that the air is supplied through a suitable compressor through a pipe k , is stored in a storage tank or reservoir k' located at some convenient point near the station platform, and is distributed from the reservoir k' through a common distributing pipe k^2 and branches k^3 to the several cylinders i . Each branch k^3 is shown as provided with an ordinary two-way cock k^4 , which may be positioned so as to admit air from the pipe k^2 to the

corresponding cylinder, as shown in section in Fig. 3, or to permit the air to exhaust from the cylinder i to atmosphere, as shown in section in Fig. 4. Any suitable form of valve may be employed and any convenient means for operating the valve may be employed, so that all of the valves of the series may be operated together either to admit air to the several cylinders together for the purpose of moving the guard platform in one direction, or to permit the air from the several cylinders to exhaust at the same time, so as to permit the guard platform to be moved in the opposite direction by the means provided for the purpose, such as the springs i' . In the arrangement shown each valve stem has thereon a gear segment l^5 which is engaged by a rack l . The rack l may be moved in one direction by the spring l' and may be moved in the other direction by the solenoid m , the core of which forms or is secured to the rack l . The several solenoids are electrically connected to a source of electric energy, such as a battery m' through circuit controlling means which are preferably of such a character that the circuit may be controlled either by a station attendant or automatically by the movement of the train. For the purpose of enabling the movement of the guard platform to be controlled by an attendant there is provided an ordinary switch m^2 , which may be located at any convenient point, preferably at one end or the other of the station platform. For the purpose of permitting the circuit and therefore the movement of the guard platform to be controlled automatically a length of each rail of the track, preferably somewhat greater than the length of a car, is indicated at f^1 , f^2 , may be suitably insulated and connected electrically, as indicated, so that when the leading car of the train passes over this portion of the track the circuit through the several solenoids will be closed through the wheels and axles of the cars and the valves will be operated and held in proper position while any portion of the train remains on the insulated, circuit closing portion of the track. By such means, the guard platform may be operated automatically even if the station attendant fails to act.

Each terminal section g^5 of the guard platform, as will be understood, is preferably pivoted at a fixed point and is tapered off, as shown in Figs. 1 and 2, so that if a train draws into a station while the guard platform is out, the forward end of the leading car will strike the tapered section g^5 and so will push back the guard platform as the train advances without carrying away the platform, the several sections of the guard platform rubbing against the side of the car as the train continues to move.

The elasticity of the air behind the pistons and in the pipes and reservoir is sufficient to permit the guard platform to yield without injury, but if desired safety valves $\frac{1}{2}$ " may be provided to permit the escape of air to the atmosphere when the pistons are pushed back. It will be understood that the pressure throughout the series of cylinders will be equalized regardless of the extent of movement of the various pistons, so that some sections of the guard platform may be moved forward farther than others to an extent limited by the distance of the side of the car body from the edge of the station platform, but the safety valves may also function to accommodate varying conditions.

It will be understood that the springs $\frac{1}{2}$ " offer yielding resistance to the forward movement of the pistons and prevent the sections of the guard platform from being thrown violently against the sides of the cars, while they also constitute yielding means to move the sections in the opposite direction when the air pressure is relieved. The devices for throwing the sections forward are also yielding so that, as before explained, one portion of the guard platform has only a slight movement until it is stopped by contact with the car body while other sections have a greater movement so that the wider spaces are closed.

Various changes in details of construction and arrangement may be made to suit different conditions of use and the invention is not limited to the particular construction shown and described herein.

I claim as my invention:—

1. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being connected together, and means to throw the several sections forward simultaneously but to varying extents determined by contact with a relatively fixed stop at varying distances.

2. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being pivotally and loosely connected together, and means to throw the several sections forward simultaneously but to varying extents determined by contact with a relatively fixed stop at varying distances.

3. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being connected together, and yielding means to throw the several sections forward simultaneously but to varying extents determined by contact with a relatively fixed stop at varying distances.

4. The combination with a station plat-

form, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being connected together, means to throw the several sections forward simultaneously but to varying extents determined by contact with a relatively fixed stop at varying distances, and means to move the several sections in the opposite direction.

5. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being connected together, means to throw the several sections forward simultaneously but to varying extents determined by contact with a relatively fixed stop at varying distances, and yielding means to move the several sections in the opposite direction.

6. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, and comprising a series of sections pivotally and loosely connected, and means to move the sections into and out of operative position.

7. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, and comprising a series of sections pivotally and loosely connected, and means to move the sections into and out of operative position, the terminal sections of the series being tapered off and pivoted at fixed points.

8. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being loosely connected together, and means applied to alternate sections to move the same.

9. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being connected together, fluid pressure devices connected to some of the sections to move them simultaneously in one direction, and springs applied to said sections to move them in the opposite direction.

10. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being connected together, a series of cylinders, pistons in said cylinders and connected to sections of the guard platform, and means to supply fluid under pressure to said cylinders.

11. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being connected together, a series of cylinders, pistons in said cylinders and connected to sec-

tions of the guard platform, means to supply fluid under pressure to said cylinders, and valves to control the admission of fluid under pressure to the cylinders.

5 12. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being connected together, a series of cylinders, pistons in said cylinders and connected to sections of the guard platform, means to supply fluid under pressure to said cylinders, valves to control the admission of fluid under pressure to the cylinders, and manual controlling devices for said valves.

13. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being connected together, a series of cylinders, pistons in said cylinders and connected to sections of the guard platform, means to supply fluid under pressure to said cylinders, and controlling devices for said valves actuated by the movement of the train.

14. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being connected together, a series of cylinders, pistons in said cylinders and connected to sections of the guard platform, means to supply fluid under pressure to said cylinders, valves to control the admission of fluid under pressure to the cylinders, and electromagnetic devices for controlling said valves.

15. The combination with a station plat-

form, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being connected together, a series of cylinders, pistons in said cylinders and connected to sections of the guard platform, means to supply fluid under pressure to said cylinders, and valves to control the connection of said cylinders to the supply of fluid under pressure or to the atmosphere.

16. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being connected together, a series of cylinders, pistons in said cylinders and connected to sections of the guard platform, means to supply fluid under pressure to said cylinders to move the pistons in one direction, and springs acting upon said pistons to move them in the opposite direction.

17. The combination with a station platform, of a sectional guard platform mounted movably below the floor of the station platform, the several sections being connected together, a series of cylinders, pistons in said cylinders and connected to sections of the guard platform, means to supply fluid under pressure to said cylinders, and a safety valve to relieve the pressure in the cylinders.

This specification signed and witnessed this 28th day of May A. D., 1912.

RAPHAEL C. GALLINANT.

Signed in the presence of—

W. B. GREELEY,

WORTHINGTON CAMPBELL.