

(No Model.)

F. S. VINCENT & J. W. CAIRNS.

STEP FOR RAILWAY CARS.

No. 374,217.

Patented Dec. 6, 1887.

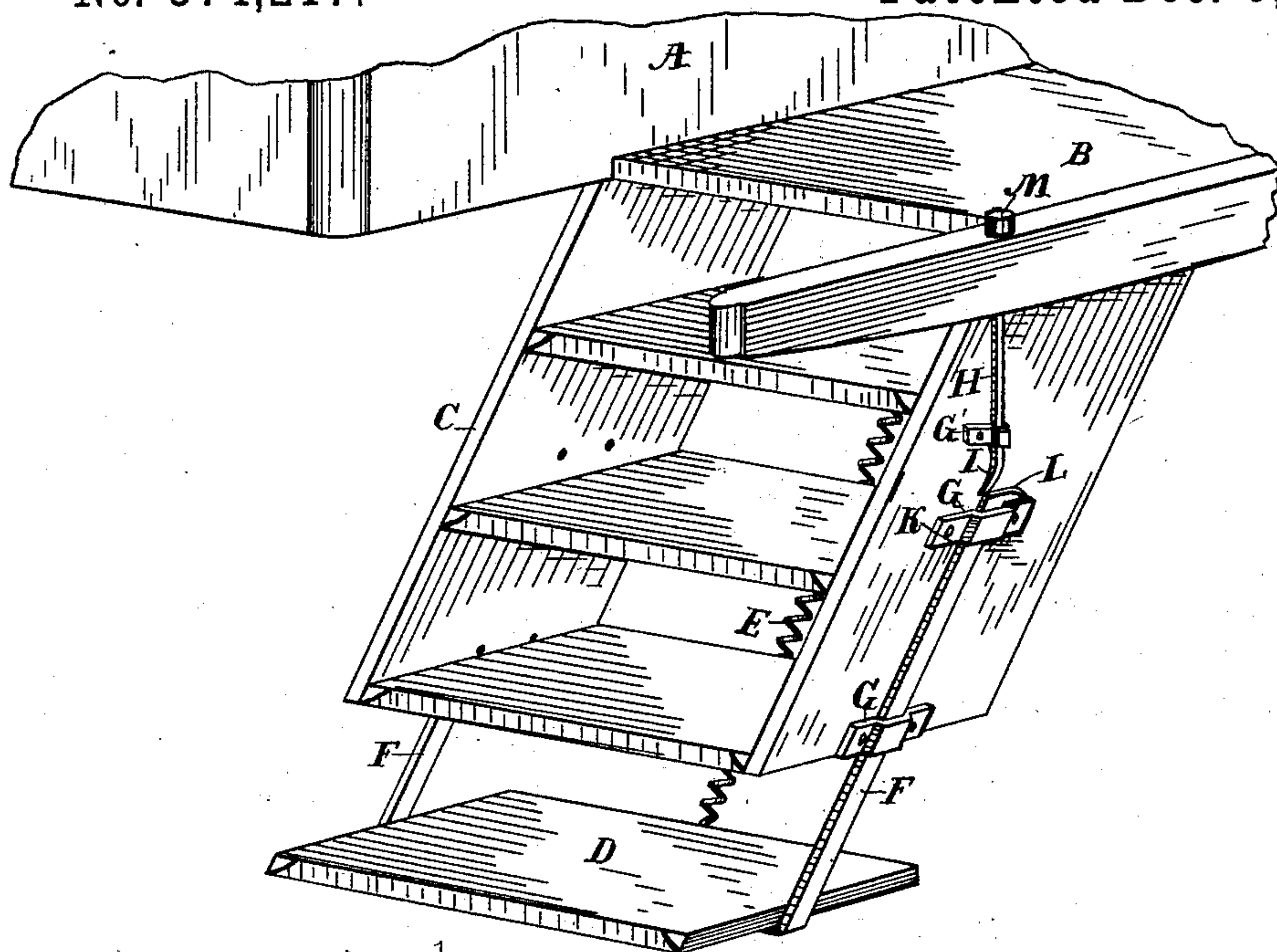


FIG. 1.

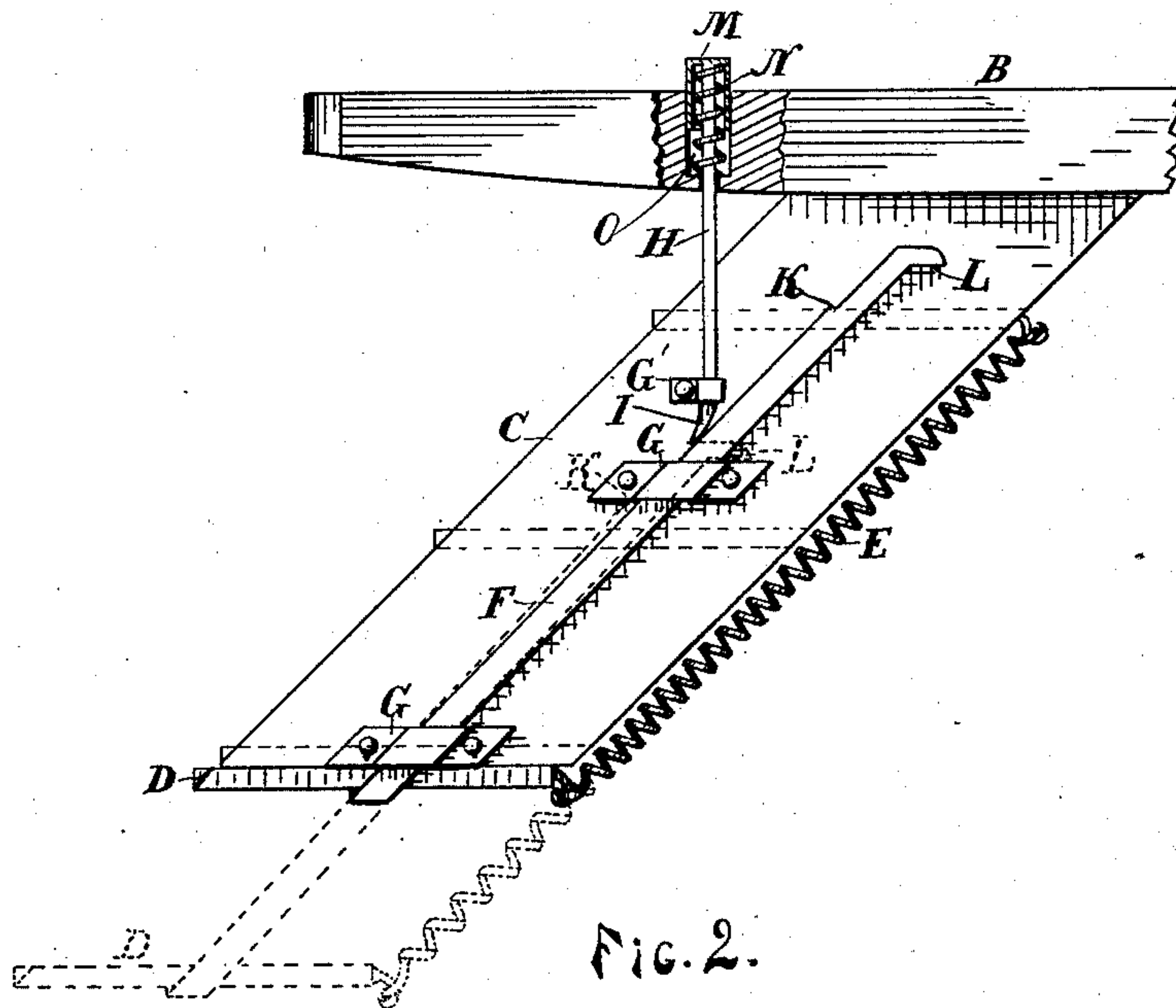


FIG. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

FRANK S. VINCENT, OF PENTWATER, AND JAMES W. CAIRNS, OF GRAND RAPIDS, MICHIGAN.

STEP FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 374,217, dated December 6, 1887.

Application filed July 2, 1887. Serial No. 243,294. (No model.)

To all whom it may concern:

Be it known that we, FRANK S. VINCENT, a citizen of the United States, residing at Pentwater, Oceana county, Michigan, and JAMES W. CAIRNS, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Steps for Railway-Coaches; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in steps for railway-coaches which are provided with a movable step at the bottom, which can be lowered for use at a station, and elevated out of the way of obstructions when the train is moving.

The objects of our invention are to provide means of sustaining and operating said movable step that can be manipulated with the foot, and that will be certain to keep the movable step in proper position while the train is in motion. We accomplish these results by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective of the steps to a coach with our device attached and the step let down for use; Fig. 2, a side elevation of the same with the step raised.

A represents the body of the coach; B, the platform; C, the steps; D, the movable step, which is supported by bars F at either side, which pass through loops G, attached to the sides of the steps C, in which said bars slide freely. These bars are provided at their upper ends with the hooks L, which, engaging with the upper sides of the loops G, sustain the step D when lowered for use.

K is a shoulder on one edge of the bar F, which engages with the under side of the loop G by a lateral movement of the bar within the loop. A pin or other fixed object may be provided for said shoulder to engage with in like manner, but we prefer the device shown. Only one of the bars F need be provided with a shoulder, K.

E is a contractile spring attached to the back side of the movable step D, and to any conven-

ient fixed point above the same, preferably in a line parallel to the bars F. Said spring is sufficiently strong to somewhat more than balance the weight of the step D and parts attached, the result being that when said step is released it will constantly tend to rise up against the under side of the lower step and remain there without other fastening. Said step D projects from beneath the lower fixed step a little to permit of placing the foot upon said projecting edge to depress said step. Said spring also tends to tilt the step forward, and thus causes the shoulder K to engage with the loop G.

H is a bar, which slides freely in a loop, G', and is sustained by the spring N, located in a chamber, O, in the platform-timber, partially inclosing said spring and closing the opening O at the top, and projecting above the platform is the tubular cap M, which thus presents a cylindrical exterior and prevents any obstructions from getting underneath to prevent its depression. At the lower end of said bar is an inclined plane, I, which comes in contact with the front side of the bar F, forcing said bar backward and disengaging the shoulder K when the bar H is depressed.

The operation of our device is as follows: When desirable, the movable step D is lowered by pressing the foot upon the front edge of the same until the shoulder K engages with the loop G and holds the step down. When the train is ready to move, by pressing the foot upon the cap M and depressing the bar H the shoulder K is disengaged, and the spring E at once brings the step D up to and in contact with the bottom of the lower step, C, as shown in Fig. 2, and sustains it there without danger of its becoming released and falling to its former position.

What we claim, and wish to secure, is as follows:

1. In combination with the steps of a railway-coach, a movable step attached to the same and provided with a spring which by its elasticity moves said step into position when out of use and sustains the same in such position, substantially as described.

2. In combination with the steps of a railway-coach, a movable step attached to the

same by bars adapted to slide in suitable fastenings and sustain said step when lowered for use, and a spring adapted to overbalance the weight of said step and cause the same to rise and remain elevated, substantially as described.

3. In combination with the steps of a railway-coach, a movable step below them, supported and attached by bars sliding in loops attached to said steps, said bars having hooks and a shoulder engaging with said loops or other fixed object, and a spring which overbalances the weight of said step and lifts and supports the same when released, substantially as described.

4. In combination with a movable step attached below the steps of a railway-coach by sliding bars and a spring adapted to lift and tilt said step, said bars having a shoulder engaging with some fixed object and holding said step down, a bar adapted to disengage said shoulder and extending above the platform, substantially as described.

5. In combination with the steps of a railway-coach, a movable step below the same, having attached bars sliding in loops attached

to said steps, said bars having hooks and a shoulder engaging with said loops, a spring attached to and adapted to lift said movable step, and a bar extending above the platform and vertically movable in its supports, having attached a sustaining-spring and a cap at its upper end, and at its lower end an inclined plane which operates to disengage said shoulder when the bar is depressed, substantially as described.

6. In mechanism for operating a movable step attached to railway-coaches, a vertically-movable bar passing through the platform, in which is a chamber surrounding said bar, within which is a spring sustaining said bar, and a cap adapted to close the upper end of said chamber and partially inclose said spring, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK S. VINCENT.
JAMES W. CAIRNS.

Witnesses:

SARAH A. MOULTON,
LUTHER V. MOULTON.