

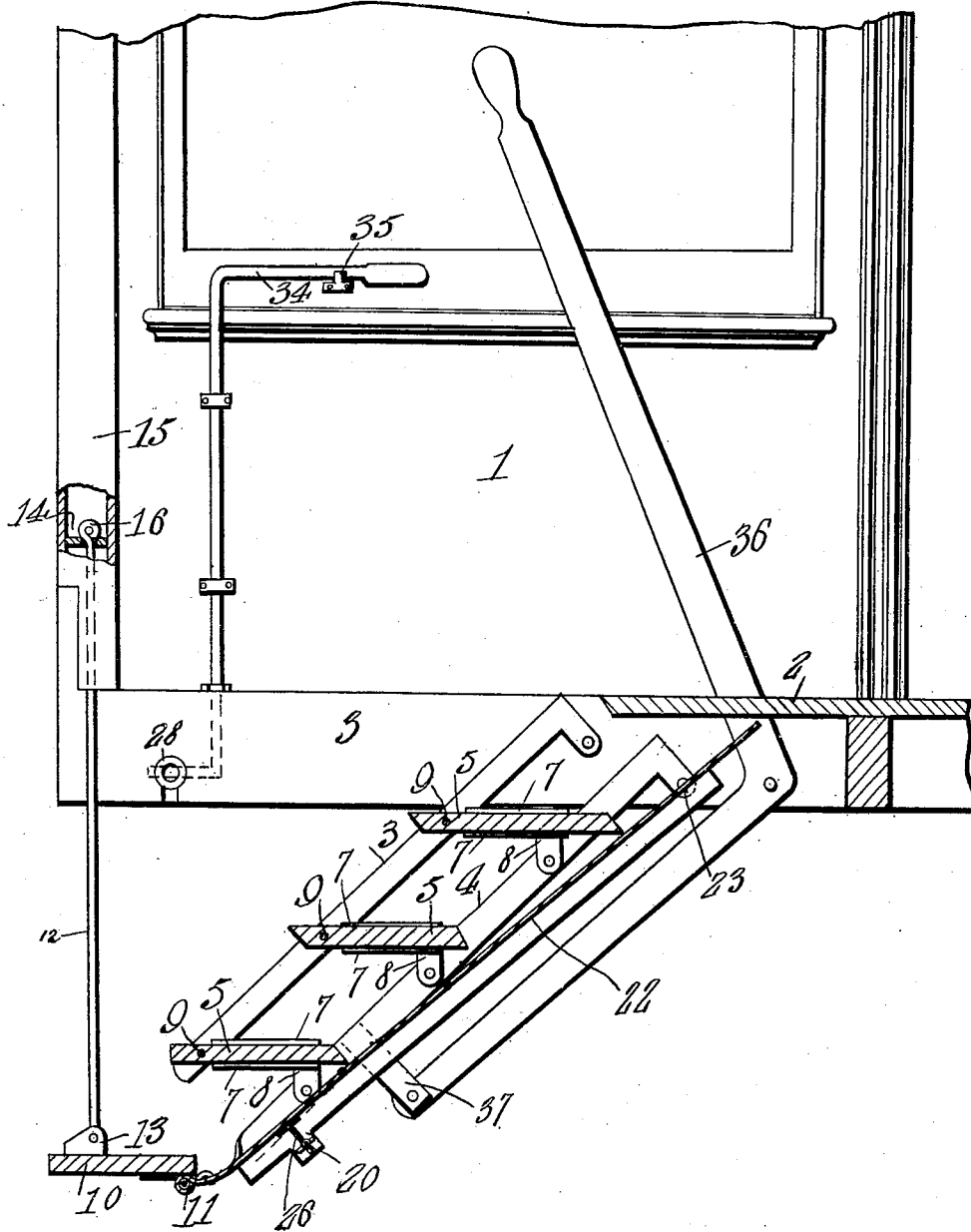
S. W. BISHOP.
CAR STEP AND PLATFORM.
APPLICATION FILED AUG. 26, 1910.

977,504.

Patented Dec. 6, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
Frank B. Woodew.
R. M. Elliott

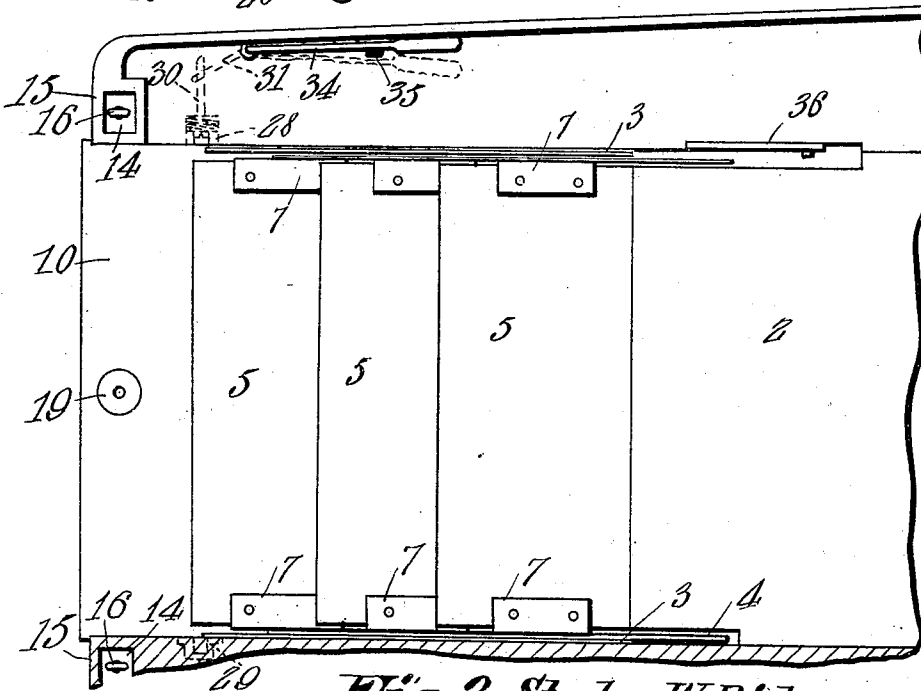
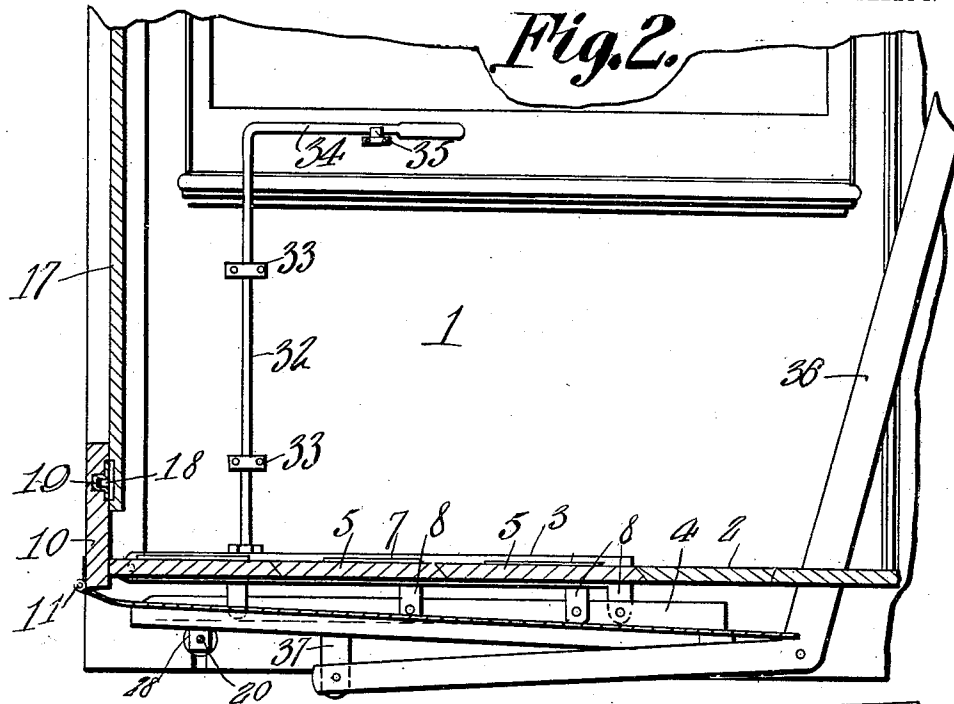
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 5.

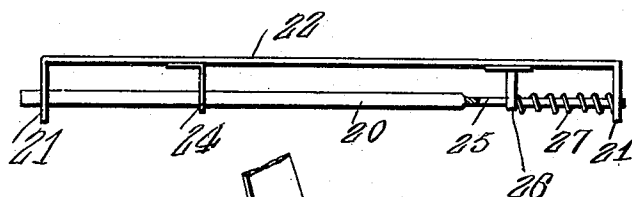


Fig. 6.

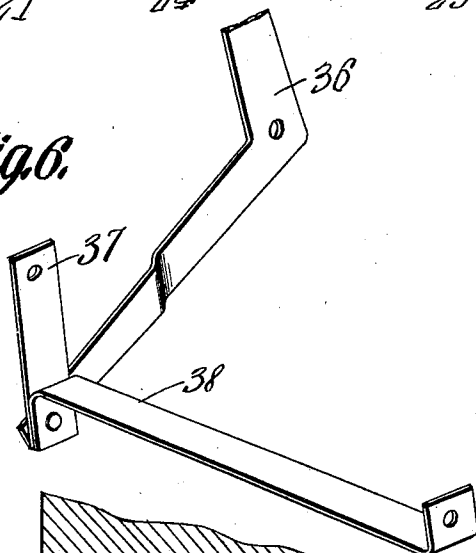
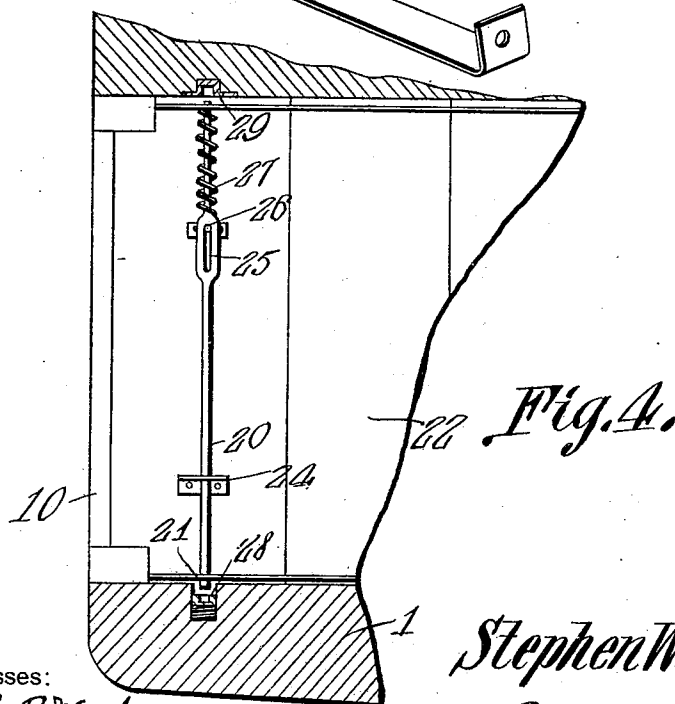
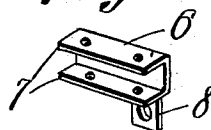


Fig. 7.



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UNITED STATES PATENT OFFICE.

STEPHEN W. BISHOP, OF WILLISTON, FLORIDA.

CAR STEP AND PLATFORM.

977,504.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed August 26, 1910. Serial No. 579,007.

To all whom it may concern:

Be it known that I, STEPHEN W. BISHOP, a citizen of the United States, residing at Williston, in the county of Levy and State of Florida, have invented a new and useful Car Step and Platform, of which the following is a specification.

This invention relates to adjustable car steps.

10 The object of the invention is to provide an improved adjustable step for railway cars, in which the parts shall be so constructed and assembled as to secure the maximum durability with the minimum liability of derangement in use; in which all danger of accidental release of the steps, as from an unauthorized person tampering with the releasing mechanism, will be prevented; and in which the operation of raising and lowering the steps may easily and quickly be accomplished.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of an adjustable car step as will be herein-
after fully described and claimed.

In the accompanying drawings forming a part of this specification, and in which like characters of reference indicate corresponding parts: Figure 1 is a view in side elevation, partly in section, of a portion of a car, showing the same equipped with the improved step and displayed in its lowered position. Fig. 2 is a similar view showing the steps raised. Fig. 3 is a top plan view of the platform and steps. Fig. 4 is a bottom plan view. Fig. 5 is a detail view of the locking bolt employed for holding the step raised. Fig. 6 is a perspective detail view of the step operating lever. Fig. 7 is a perspective detail view of a part of the mechanism.

Referring to the drawings, 1 designates one end of a car, of the vestibule type, and 2 the platform supported on the usual floor beams. Pivotally connected at their upper ends with each of two adjacent beams beneath the platform, are two pairs of step bars 3 and 4 the latter of which are the longer, and the upper ends of each pair of bars are disposed at right angles to their length to cause all of the steps 5 to drop equally. The steps are connected with the two pairs of bars by stirrups 6, each of

which comprises two flanges 7 to receive the ends of the steps, and an orificed ear 8 disposed at right angles to the flanges and designed to be pivotally connected with the bar 4, the connection between the step and the bar 3 being secured by a bolt 9. By the employment of the stirrups the steps are firmly braced transversely so that warping will be prevented. As usual, the meeting edges of all of the steps except the lowermost one, and platform are beveled to provide close joints, and obviate an uneven surface.

One of the important features of the invention is the dual function secured by the manner of mounting the lower step 10 to cause it not only to act as an ordinary step but also as a means to prevent accidental lowering of the steps by an unauthorized person. The latter result is secured by hanging the lower step on a rod 11 carried by the lower ends of the bar 4, as clearly shown in Fig. 1. The step 10 is held in horizontal position, when lowered, by two rods 12, (one being shown in Fig. 1) the lower ends of which are pivoted between pairs of ears 13 carried by the step, and the upper portions of which slide in plates 14 firmly secured within the corner stanchions 15, downward movement of the rods being limited by stops 16, in the nature of eyes, formed at their upper ends. As will be seen by reference to Fig. 2, when the steps are raised, the lower step occupies a plane at right angles to the others and rests against the car door 17. To prevent the steps from lowering should the releasing mechanism, presently to be described, be tampered with by unauthorized persons, the door 17 is provided with a catch 18 designed to interlock with a socket 19 carried by the step. The nature of the engagement between the catch and the socket will not be such however, as to interfere with the ready lowering of the steps.

The step locking and releasing mechanism referred to comprises a bolt 20, clearly shown in Fig. 4 and in detail in Fig. 5 which is mounted to reciprocate in brackets 21, formed by the down turned flanges of an apron 22, the lower end of which has a hinge connection with the rod 11 as clearly shown in Fig. 1, the upper ends of the flanges being assembled with the step bars 4 by the bolts 23 that hold the bars connected with the floor beams. In order to guide the bolt properly an intermediate bracket 24 is secured to the

apron and through which the bolt projects. At a point adjacent to one end of the bolt there is a flattened portion provided with a slot 25 through which projects a pin 26 secured to the underside of the apron. On one end of the bolt is arranged a coiled spring 27 one terminal coil of which bears against the flange 21 and at the other terminal coil against the flattened portion of the bolt.

10 Arranged within the sill beams, and in position to be engaged by the ends of the bolt are two sockets 28 and 29, the tendency of the spring 27 being normally to cause the bolt to engage with the socket 28. Connected with

15 the socket 28 is a rod 30 which is engaged by the crank arm 31 of a lever 32 working in guides 33 on the end of the car and provided with a handle 34 disposed at right angles to the length of the lever and arranged to traverse a rack plate 35. When the lever is in the position shown in Fig. 3, the socket 28 projects beyond the sill beam that carries it and engages one end of the bolt 20, thereby forcing the other end of the latter into engagement with the socket 29 and thus securely maintain the steps in raised position. To release the steps, the handle 34 is moved to the position shown by dotted lines in Fig. 3, whereupon the spring 27 exerts its function and forces the bolt toward the socket 28 until stepped by the pin 26 contacting with the adjacent end wall of the slot. This movement will be sufficient to clear the end of the bolt from the socket 29, and as the

35 socket 28 has already been moved into its seat, the steps are now free to be moved downward. The raising and lowering of the steps is accomplished by an approximately L-shaped lever 36, pivoted at its bend to one

40 of the sill beams and having one arm projecting upward in front of the end of the car, and its other arm connected with two reach bars 37 and 38 which are secured to the step bars 4 near their lower ends. When the bolt

45 20 has been released in the manner described, and the lever shifted from the position shown in Fig. 2 to that shown in Fig. 1, the steps will be lowered as shown in the latter

figure, the reverse of this being true when the lever is shifted as shown in Fig. 2.

From the foregoing description it will be seen that by the manner of constructing and arranging the parts of the apparatus a thoroughly efficient and practical form of adjustable step is provided, and one in which every element of danger in use is eliminated.

What is claimed is:

1. An adjustable car step having its lowermost step arranged to be secured to the car door whereby to prevent accidental lowering of the steps should the locking mechanism be improperly unlocked.

2. An adjustable car step embodying raising and lowering means, a series of steps, means for holding the steps in raised position, and means to secure the lowermost step to the car door.

3. An adjustable car step comprising a series of pivotally connected steps, a lower step pivotally supported independently of the other steps, means for raising the series of steps, means for moving the lowermost step to a position at right angles to the other steps to cause it to contact with the car door, means for securing the said step and door together, and automatically operating means for locking the series of steps in raised position.

4. An adjustable car step comprising a series of pivotally connected steps, means for raising and lowering the same, a lower step pivoted independently of the other steps, means for causing the lower step to assume a position at right angles to the other steps when in raised position, means for securing the lower step to the car door, a spring actuated bolt to hold the steps raised, and means for locking the bolt against accidental release.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

STEPHEN W. BISHOP.

Witnesses:

J. A. MALLOY,
S. T. HOWARD.