C. J. WELLS.

EXTENSION CAR STEP.

APPLICATION FILED AUG. 17, 1916.

1,228,271. Patented May 29, 1917.

Fig. 1.

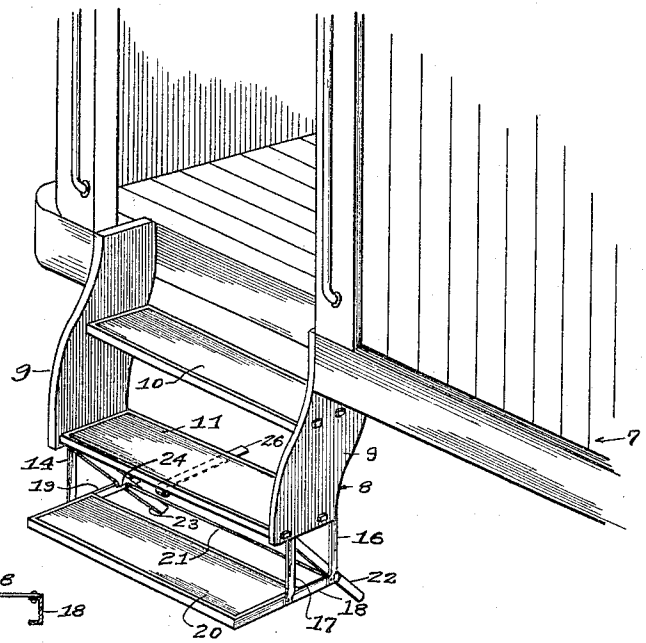

Fig. 6.

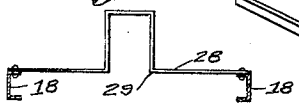

Fig. 2.

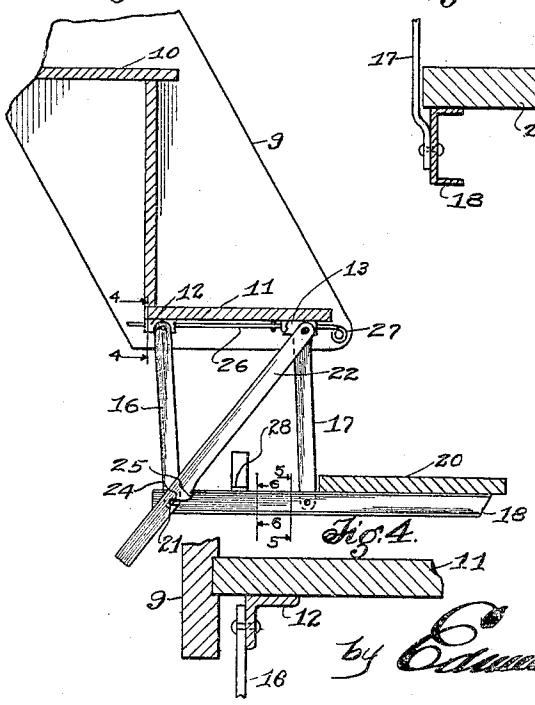

Fig. 5.

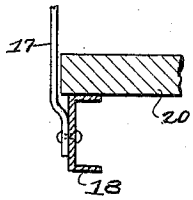

Fig. 3.

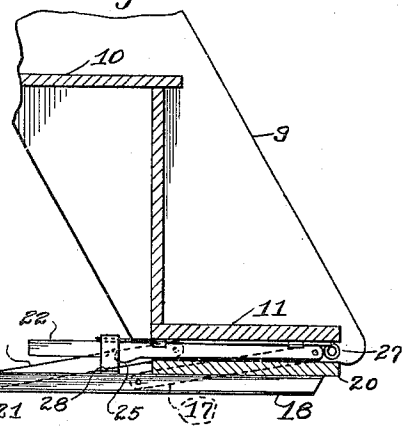

Fig. 4.

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UNITED STATES PATENT OFFICE.

CHIPMAN J. WELLS, OF LONG BEACH, CALIFORNIA, ASSIGNOR OF ONE-HALF TO SARAH L. DE LAND, OF LONG BEACH, CALIFORNIA.

EXTENSION CAR-STEP.

1,228,271. Specification of Letters Patent. Patented May 29, 1917.

Application filed August 17, 1916. Serial No. 115,462.

To all whom it may concern:

Be it known that I, CHIPMAN J. WELLS, a citizen of the United States, residing at Long Beach, in the county of Los Angeles, State of California, have invented new and useful Improvements in Extension Car-Steps, of which the following is a specification.

This invention relates to an extension car step, and pertains to a construction especially adapted to be attached to the car steps of a railway coach.

It is an object of this invention to provide a step which may be folded beneath the car steps in railway coaches or like structures when not in use, and which may be readily and conveniently extended when desired.

It is another object to provide a foldable step with locking means to hold the same in position when extended and which firmly and securely holds the step in such position.

A further object is to provide a locking means having an extension step which operates automatically on the extension of the step, and which may be conveniently operated to release the step.

In addition to the broader features of design there are certain specific features of construction whereby strength and simplicity of structure and ease of manipulation is secured.

I accomplish these objects by means of the embodiment of my invention illustrated in the accompanying drawing, in which:

Figure 1 is a perspective view of the rear portion of a railway coach equipped with my improved extension car step.

Fig. 2 is a fragmentary vertical section of the structure shown in Fig. 1.

Fig. 3 is a section similar to Fig. 2 showing the extension step folded.

Fig. 4 is a fragmentary detail section as seen on the line 4—4 of Fig. 2.

Fig. 5 is a fragmentary detail section as seen on the line 5—5 of Fig. 2.

Fig. 6 is a detail section as seen on the line 6—6 of Fig. 2.

Referring more particularly to the drawing, 7 indicates a railway coach provided with the usual platform, and having a car step 8. The coach and step illustrated is merely a conventional representation of the ordinary construction of railway coaches to which my improved extension step may be applied.

The car steps comprise stringers 9 upon which are mounted the treads 10 and 11. The specific character of the treads and stringers is not material to my invention.

Secured to the under surface of tread 11 are brackets indicated by 12 and 13. The brackets are for the purpose of supporting riser bars which are indicated by 14, 16, and 17. Pivotally secured to the lower ends of a pair of riser bars 16 and 17 is a supporting bar 18 preferably of angle iron. Pivotally connected to the lower ends of the pair of riser bars, of which the bar 14 is a member, is a supporting bar 19. Mounted forwardly of riser bar 17 and upon the supporting bars 18 and 19 is a tread 20. It will be noted from Fig. 5 that the riser bars are off-set adjacent their connection to the supporting bars so that the tread 20 may swing inwardly between the riser bars. The construction above described is such that by pushing the tread 20 inwardly from the position shown in Fig. 2, it will fold beneath the tread 11 as shown in Fig. 3. When in extended position shown in Fig. 2 weight placed on the tread which acts directly downwardly will be securely supported.

In order to lock the step in position and brace it against swinging inwardly and outwardly, I have provided a catch bar 21 which extends between supporting bars 18 and 19 and adjacent the pivotal support of riser bars 15 and 16. The catch bar 21 is preferably arranged so that the riser bars 15 and 16 are pivoted thereon. Pivotally supported from the tread are latch brace bars to coöperate with catch bar 21, and comprised of bars 22 and 23 which are pivoted to the front hanger. Each of the latch bars is provided with a notch 24 so disposed that when the tread 20 is in extended position the catch bar 21 will rest in slots 24, thereby locking the extension step against swinging movement, and also bracing the latter.

In order to insure engagement of the catch bar 21 with the slots 24 in the latch bar each bar is provided with a swell 25 located immediately above the notches 24 so that as the step is opened the latch bars riding along the catch bar 21 will cause the former to be thrown outwardly as they idle over the swells 25, and then rebound engaging the catch bar in the slots 24. To raise the step into folded position the latch bars 22 are raised disengaging the catch bar 24 from the

notches. The step can then be swung upwardly with the tread 20 below the tread 11 and the rearwardly projecting parts disposed beneath the car steps. In this position all parts are disposed in a space not ordinarily made use of and are out of the way.

A means for locking the step in its folded position is herein shown and comprises a bolt 26 arranged beneath tread 11, and transverse thereto. Bolt 26 is supported so that it may be moved forwardly or to the rear to lock and unlock the step, and for convenient operation a head 27 is provided on the bolt so that the latter may be easily grasped by the hand.

Secured between supporting bars 18 and 19 is a bar 28 which is provided with an offset portion 29 at the center. This bar is so arranged that when the step is in folded position and bolt 26 forced to the rear, the end thereof will be disposed beneath the offset portion 29 of bar 28, thereby retaining the step in its folded position. To release the step the bolt 26 is moved forwardly beyond bar 28. Various other means of locking the step in folded position may be used, such as friction joints and catches.

What I claim is:

1. An extension step, comprising in combination a tread structure, pairs of riser bars pivotally secured adjacent one of their ends to said tread structure and pivotally supported at the other ends below a step, members of a pair spaced along said tread structure, whereby said tread structure may be swung downwardly and forwardly with respect to said step, and a latch brace bar pivotally connected to said step at a point forward of the rear riser bars, and having a catch to engage said tread structure rearwardly of the pivotal point of said latch bar.

2. An extension step, comprising in combination a tread structure, pairs of riser bars pivotally secured adjacent one of their ends to said tread structure and pivotally supported at the other ends below a step, members of a pair spaced along said tread structure, whereby said tread structure may be swung downwardly and forwardly with respect to said step, a catch bar secured to said tread structure, and a latch brace bar pivotally connected to said step at a point forward of the rear riser bars, and having a notch to engage said catch bar.

3. In combination, a tread structure comprising tread supporting bars disposed beneath said tread and extending to the rear thereof, pairs of riser bars pivotally connected to the extended portion of said supporting bars and pivotally supported below a step, the members of a pair spaced along a supporting bar, whereby said tread structure may be swung downwardly and forwardly with respect to said step, and a latch bar arranged to catch and lock the tread structure when the latter is extended.

4. In combination, a tread structure comprising tread supporting bars disposed beneath said tread and extending to the rear thereof, pairs of riser bars pivotally connected to the extended portion of said supporting bars and pivotally supported below a step, the members of a pair spaced along a supporting bar, whereby said tread structure may be swung downwardly and forwardly with respect to said step, and a latch brace bar pivotally connected to said step at a point forward of the rear riser bars and having a catch to engage said tread structure rearwardly of the pivotal point of said latch bar.

5. In combination, a tread structure, comprising tread supporting bars disposed beneath said tread and extending to the rear thereof, pairs of riser bars pivotally connected to the extended portion of said supporting bars and pivotally supported below a step, the members of a pair spaced along a supporting bar, whereby said tread structure may be swung downwardly and forwardly with respect to said step, a catch bar secured between said supporting bars, and a latch brace bar pivotally connected to said step at a point forward of the rear riser bars, and having a notch to engage said catch bar.

In witness that I claim the foregoing I have hereunto subscribed my name this 24th day of July, 1916.

CHIPMAN J. WELLS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."