

No. 828,743.

PATENTED AUG. 14, 1906.

J. E. JONES.  
EXTENSION STEP FOR RAILWAY CARS.  
APPLICATION FILED FEB. 7, 1906.

2 SHEETS—SHEET 1.

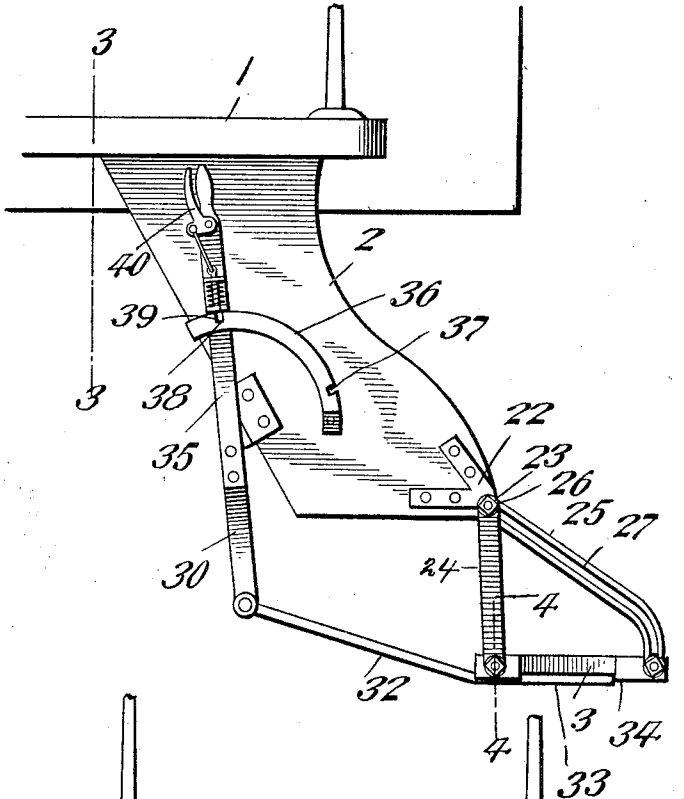


Fig. 1.

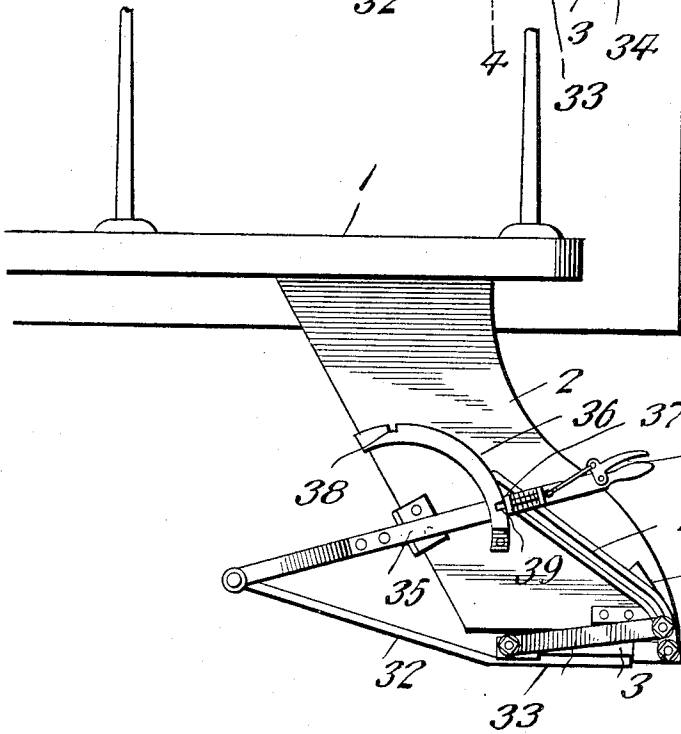


Fig. 2.

Witnesses  
*Geo. Ackerman*  
*C. C. Hines*

Inventor  
*Jesse E. Jones,*  
By *Victor J. Evans*  
Attorney

J. E. JONES.  
EXTENSION STEP FOR RAILWAY CARS.  
APPLICATION FILED FEB. 7, 1906.

2 SHEETS—SHEET 2.

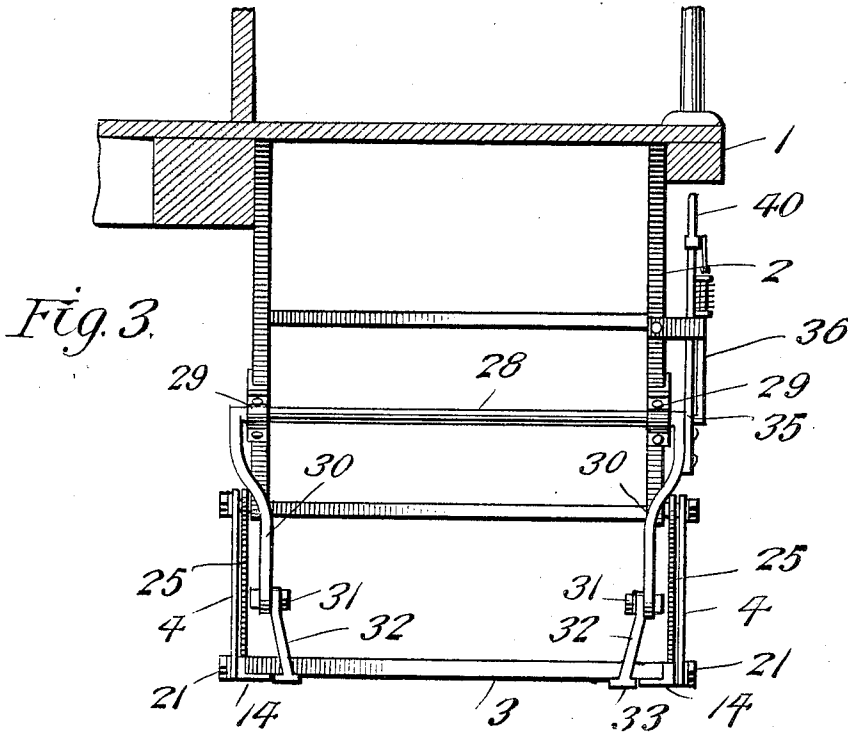


Fig. 3.

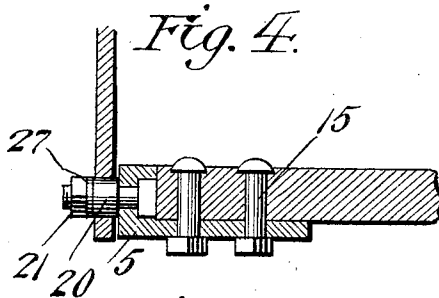


Fig. 4.

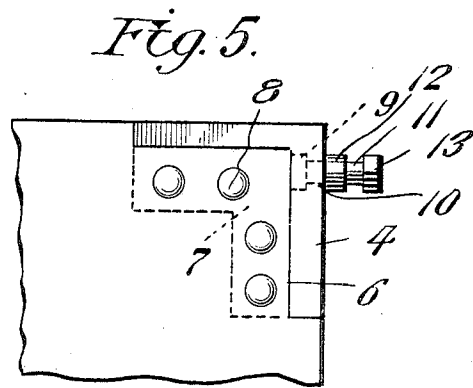


Fig. 5.

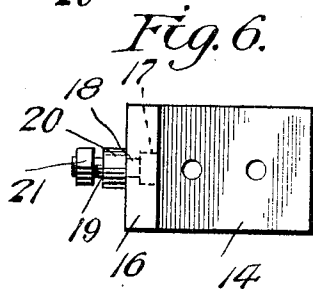


Fig. 6.

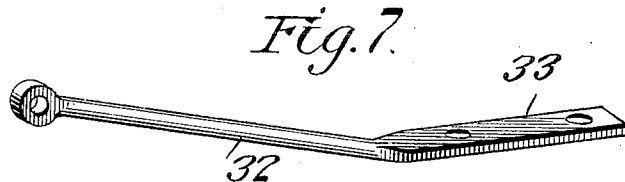


Fig. 7.

Witnesses

*Geo. Ackerman*  
C. C. Jones

Inventor

Jesse E. Jones,

By

*Victor J. Evans*  
Attorney

# UNITED STATES PATENT OFFICE.

JESSE E. JONES, OF WEST MIDDLETON, INDIANA.

## EXTENSION-STEP FOR RAILWAY-CARS.

No. 828,743.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed February 7, 1906. Serial No. 299,982.

*To all whom it may concern:*

Be it known that I, JESSE E. JONES, a citizen of the United States of America, residing at West Middleton, in the county of Howard and State of Indiana, have invented new and useful Improvements in Extension-Steps for Railway-Cars, of which the following is a specification.

This invention relates to extension or supplemental steps for railway-cars, the object in view being to provide a simple and efficient construction of step and operating mechanism whereby the step may be projected below and beyond the stationary or permanent steps of the car to enable passengers to ascend the steps or descend them with ease while a train is standing at a station and whereby the step may be folded beneath the stationary or permanent steps when not in use so that it will not project beyond the body of the car when the latter is in motion.

In the accompanying drawings, Figure 1 is a side elevation of the permanent steps at one side of a car and shows the supplemental step applied thereto and projected for use. Fig. 2 is a similar view showing the supplemental step retracted. Fig. 3 is a section on the line 3 3 of Fig. 1 looking toward the rear of the steps and showing the supplemental step in projected position. Fig. 4 is a detail transverse section on the line 4 4 of Fig. 1, illustrating one of the rear corner-brackets and the application of the rear supporting-link thereto. Fig. 5 is a fragmentary to p plan view of the supplemental step, showing one of the front corner-brackets. Fig. 6 is a top plan view of one of the rear corner-brackets. Fig. 7 is a detail view of one of the connecting-rods.

Referring to the drawings, the numeral 1 represents an end platform of a railway-car, and 2 one of the sets of permanent or stationary steps extending beneath and at the side thereof.

The supplemental step 3 is of conventional rectangular form and of somewhat greater length than the permanent step and is provided with front and rear stiffening and reinforcing corner-brackets 4 and 5. Each front corner portion of said step is recessed, as at 6, for the reception of the bracket 4, which is of L form or provided with portions arranged at right angles to each other and occupying recesses in the front and side edges of the step. The bracket has an attaching portion or flange 7 corresponding in form thereto and projecting beneath the step, to which it is

fastened by bolts 8. The side arm of the bracket is formed on its inner face with a socket 9, and a passage 10 communicates with said socket. The socket 9 receives the head of a pivot-bolt 11, the shank of which extends outwardly beyond the side of the step through the passage 10 and is provided with a friction-roller 12 and a nut 13.

Each bracket 5, applied to the rear corner portions of the step, is formed with an attaching-plate 14, extending beneath the step and fastened thereto by bolts 15, and with an upwardly-extending bearing portion 16, which abuts against the side edge of the step. The portion 16 is formed with a socket 17 and passage 18, corresponding to the socket 9 and passage 10 in each bracket 4, said socket and passage receiving the head and shank of a pivot-bolt 19, carrying a friction-roller 20 and a retaining-nut 21.

V-shaped brackets 22 are fixed to the lower front portions of the sides of the permanent steps 2 and carry pivot-bolts 23, to which the upper ends of rear and front supporting-links 24 and 25 are pivotally connected and are retained in engagement therewith by nuts 26. The lower ends of the links 24 pivotally engage the friction-rollers 20 of the rear corner-brackets 5 and are retained in connection therewith by the nuts 21 and intervening washers 27, as shown in Fig. 4. These links 24 are straight and normally hang vertical when the supplemental step is projected. The links 25 are of curved or angular form, so as to project at a forward and downward angle from the bolts 23 when the supplemental step is projected to properly support the forward portion thereof. The lower ends of the links 25 are bent to extend vertically when the step is projected, and said links are longitudinally slotted, as indicated at 27, and have their lower ends pivotally engaging the friction-rollers 12 of the front bracket pivot-bolts 11 and retained thereon by the nuts 13. The links 24 are adapted to swing upon the bolts 23, while the links 25 are adapted to slide upwardly and rearwardly upon said bolts, so that the supplemental step will fold to the position shown in Fig. 2 beneath the lower permanent step.

The means for swinging the supplemental step to projected or retracted position comprises a rock-shaft 28, mounted in brackets 29, secured to the rear of the permanent steps, said shaft being provided with depending arms 30, pivotally connected at their lower

ends by bolts 31 to the rear ends of connecting rods 32, the forward ends of which are provided with flattened portions 33, extending beneath the supplemental step and fastened thereto by bolts 34. To one of the arms of the rock-shaft is bolted an operating-lever 35, movable between the outer side wall of the permanent steps and a guide-rack 36 fixed thereto, said rack being provided with notches or teeth 37 and 38, adapted to be engaged by a spring-actuated dog 39, carried by the lever to lock the step in projected and retracted positions. A finger or thumb lever 40 is provided upon the operating-lever for actuating the dog, and it will be apparent that when the operating-lever is swung forward or rearward the supplemental step will be projected to the position shown in Fig. 1 from that shown in Fig. 2 and retracted by a reverse movement thereof.

The invention thus provides a step which is simple of construction and may be conveniently manipulated from the platform of the car or from the outer side of the permanent step by an attendant standing on the ground.

Having thus described the invention, what is claimed as new is—

1. The combination with the permanent steps of a car provided with pivot-supports, of a supplemental step, rear supporting-links pivotally connecting the rear portion of the supplemental step with the pivot-supports, front supporting-links pivotally connected with the front portion of the supplemental step and longitudinally slotted to slidably and pivotally engage said pivot-supports, whereby the supplemental step is adapted to fold beneath the permanent steps and to be swung outwardly and downwardly therefrom, and means for swinging said supplemental step.

2. The combination with the permanent steps of a car provided with pivot-supports, of a supplemental step, rear supporting-links pivotally connecting the rear portion of the supplemental step with the pivot-supports, front supporting-links pivotally connected with the front portion of the supplemental

step and pivotally and slidably engaging said pivot-supports, whereby the supplemental step is adapted to fold beneath the permanent steps and to be swung outwardly and downwardly therefrom, and means for swinging said supplemental step.

3. The combination with the permanent steps of a car, of a supplemental step provided with front and rear antifriction supports, pivot-supports on the permanent steps, front and rear sets of links pivotally connected with said antifriction pivot-supports and the pivot-supports on the permanent steps, the front set of links being also slidably connected with the pivot-supports on the permanent steps, and means for swinging the supplemental step.

4. The combination with the permanent steps of a car, of a supplemental step provided with front and rear corner-brackets, antifriction pivot members carried by said brackets, pivot-supports on the permanent steps, front and rear sets of links pivotally connecting said antifriction pivot members and pivot-supports, the front set of links being longitudinally slotted for sliding engagement with said pivot-supports, and means for swinging the supplemental step.

5. The combination with the permanent steps of a car provided with pivot-supports, of a supplemental step, rear supporting-links pivotally connecting the rear portion of the supplemental step with the pivot-supports, front supporting-links pivotally connected with the front portion of the supplemental step and pivotally and slidably engaging said pivot-supports, a rock-shaft mounted on the permanent steps and provided with depending arms, rods attached to the permanent steps and pivotally connected with said arms, an operating-lever carried by one of the arms, and means for locking said lever in adjusted position.

In testimony whereof I affix my signature in presence of two witnesses.

JESSE E. JONES.

Witnesses:

JOHN R. GRUBBS,  
WILLIAM G. HAMILTON.