

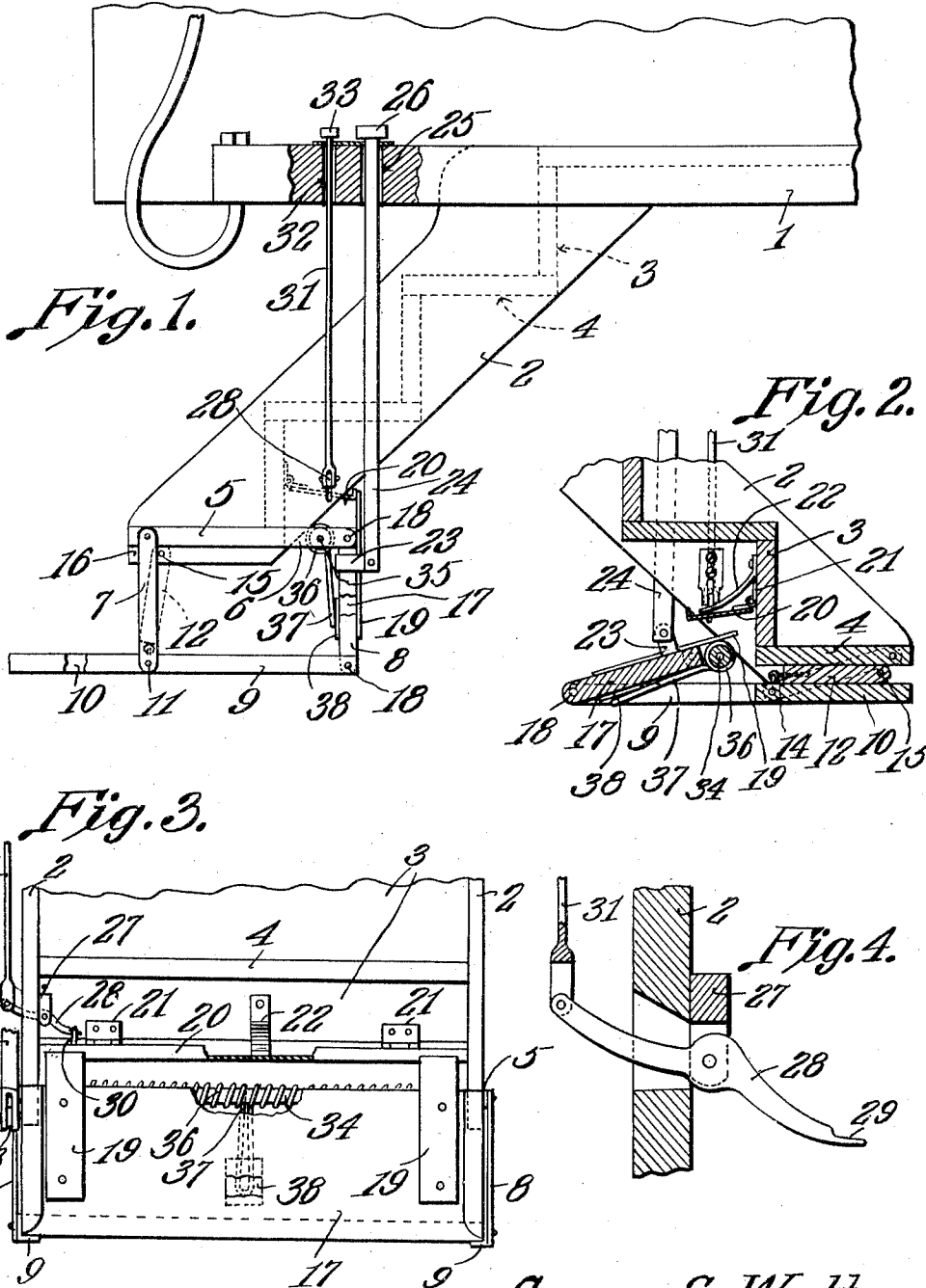
G. S. WATTS.

CAR STEP.

APPLICATION FILED NOV. 18, 1910.

1,009,812.

Patented Nov. 28, 1911.



Witnesses

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UNITED STATES PATENT OFFICE.

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CAR-STEP.

1,009,812.

Specification of Letters Patent. Patented Nov. 28, 1911.

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To all whom it may concern:

Be it known that I, GEORGE S. WATTS, a citizen of the United States, residing at Gainesville, in the county of Hall and State of Georgia, have invented a new and useful Car-Step, of which the following is a specification.

By way of explanation, I will state that the steps of railway coaches, and like vehicles, are ordinarily spaced at considerable height above the ground, and when a passenger alights from the steps, it is commonly necessary to employ an auxiliary stool. The train often moves slightly after the passenger begins his descent, and in other cases, the auxiliary stool not infrequently overturns, when the foot of the passenger is placed thereon; both of which contingencies result in injury to the passenger, and litigation.

It is the object of this invention to provide an auxiliary step, adapted to be assembled with the steps of a railway coach, the construction being such that the auxiliary step may be advanced at the will of an operator, the auxiliary step, however, normally remaining housed beneath the permanent steps of the coach.

A further object of this invention is to improve auxiliary car steps of this character, to increase their strength, and to facilitate their operation.

With the above and other objects in view, the invention consists in the novel construction and arrangement of parts hereinafter described, delineated in the drawings, and claimed, it being understood that within the scope of what is claimed, divers changes in the form, proportion, size, and minor details of the structure may be made, without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 shows the invention in side elevation, parts being broken away; Fig. 2 is a fragmental vertical section, showing the auxiliary step in retracted position; Fig. 3 is a fragmental rear elevation, parts being broken away; and Fig. 4 is a fragmental transverse section of the side of the permanent steps of the vehicle, the view showing in detail the lever whereby the latch is actuated.

In the drawings, the car body is denoted generally by the numeral 1, the stiles or sides of the permanent car steps being denoted by the numeral 2, the risers of the permanent

car steps being denoted by the numeral 3, and the tread of the permanent car steps being denoted by the numeral 4.

The material from which my invention is fashioned, may be selected to suit the exigencies of the particular case and the forms of many of the elements of the structure may be changed, within the scope of the powers of an ordinary mechanic, without in any way altering the operation of the device or jeopardizing its utility. However, in order to present a concrete embodiment, and to show one form in which the invention may be incorporated, I have secured to the stiles 2 of the permanent car structure, horizontal bars 5, extended as denoted by the numeral 6 to the rear of the permanent steps of the car. Pivoted to the bars 5, adjacent their forward ends, are forward hangers 7. Rear hangers 8 are pivotally connected with the extended portions 6 of the bars 5. Secured pivotally to the lower ends of the hangers 7 and 8, and located at the sides of the device, are movable bars 9, which, as clearly seen in Fig. 3, are ordinarily angle members. Secured between the forward ends of the movable bars 9 is an auxiliary tread 10. The pivot elements 11 whereby the forward hangers 7 are connected with the movable bars 9, are ordinarily extended through the movable bars, into engagement with the auxiliary tread 10; this construction being outlined in Fig. 1.

A movable riser 12 is hinged along its upper edge to or near the lower tread 4 of the permanent car steps, the movable riser being hinged in any manner as at 14 in Fig. 2, to the auxiliary tread 10. The hinge union between the movable riser 12 and the car steps, may be effected by any suitable means indicated conventionally at 15-16.

Held between the rear hangers 8, is a back plate 17, the pivot elements 18 whereby the rear hangers are connected with the bars 5 and 9, being preferably extended inwardly into engagement with the back plate 17. The construction of this back plate 17 may be varied greatly. Upon the back plate 17 are spaced upstanding fingers 19. These fingers 19 and the back plate 17 will be referred to hereinafter under the general designation of the "back."

Hinged along one edge, as shown at 21, to one of the risers 3 of the permanent car steps is a plate 20, hereinafter referred to as the latch. This latch 20 may be held nor-

mally in the position shown in Fig. 2, by means of a spring 22, ordinarily, but not of necessity secured at one end to one of the risers 3, and at the other end bearing against the latch 20. Projecting rearwardly from one of the rear hangers 8 is an arm 23, to the extremity of which is pivotally secured a primary push rod or plunger 24, the upper end of which is slidable in an opening 25 in the car body 1, the primary plunger terminating preferably in a head 26. A bracket 27 is secured to the inner face of one of the stiles 2 of the permanent car steps, as seen most clearly in Fig. 4. In this bracket 27 is fulcrumed a lever 28, disposed transversely of the stile 2 in which it is mounted. This lever 28 terminates in a finger 29, adapted to engage beneath an eye 30 in the latch 20. To the other end of the lever 28 is pivoted the lower end of a secondary plunger or push rod 31, the upper end of which is slidable in an opening 32 in the car body 1, the secondary plunger being terminally provided with a head 33.

Resilient means are provided for retracting the auxiliary tread 10, so that the same will be held normally beneath the permanent steps of the car. The resilient means for retracting the auxiliary tread, like the resilient means for depressing the latch 20, may be varied greatly in construction, without departing from the spirit of the invention. However, in the present instance, a rod 34 is terminally mounted in the rearwardly extended portions of the bars 5, the ends of the rod 34 being terminally held in the bars 5, as shown at 35. A helical spring 36 is wound around the rod 34, the ends of the helical spring being fixed. Intermediate the ends of the spring, an outstanding finger 37 is formed, this finger 37 bearing against a wear plate 38 secured to the forward face of the back plate 17.

Referring to Fig. 2, wherein the auxiliary tread 10 is shown in retracted position, and comparing Fig. 2 with the other figures of the drawing for a clearer understanding of details, it will be seen that when the primary push rod or plunger 24 is depressed, the hangers 7 and 8 will be swung into vertical positions, the auxiliary tread 10 being advanced from beneath the permanent steps of the car, when depressed, as shown in Fig. 1. While this operation is taking place, the upper ends of the fingers 19 which are on the back plate 17, will bear against the latch 20, lifting the same, and putting the spring 22 under tension. As soon as the fingers 19 have moved clear of the outer edge of the latch 20, the spring 22 will depress the latch 20, causing the same to engage in front of the fingers 19, the plate 17 being thus held in vertical position, the other parts of the structure being disposed as shown in Fig. 1. Thus, in a single operation, which said op-

eration consists merely in depressing the primary plunger 24, the auxiliary tread 10 will be advanced and lowered, and locked by the latch 20 in the position shown in Fig. 1.

When it is desired to retract the auxiliary tread 10, that is, to move the same from the position shown in Fig. 1 to that shown in Fig. 2, the secondary plunger 31 is depressed, whereupon the auxiliary tread 10 will be automatically retracted into the position shown in Fig. 2. This result is effected as follows: When the secondary plunger 31 is depressed, the outer end of the lever 28 is depressed, the finger 29 of the lever being elevated. This finger 29, engaging the eye 30, will lift the latch 20 upon its hinges 21, withdrawing the edge of the latch 20 from in front of the fingers 19 which are upon the back plate 17. Recalling that the finger 37 of the spring 36 bears against the forward face of the back plate 17, it will be seen that as soon as the latch 20 is free of the fingers 19, the finger 37 and the spring 36, acting against the back plate 17, will swing the back plate rearwardly and upwardly, from the position shown in Fig. 1 to that shown in Fig. 2, the auxiliary tread during this operation, being retracted and drawn upwardly into the position shown in Fig. 2.

Although the resilient means in the form of the spring 36 is provided, for the purpose of elevating the auxiliary tread 10 and retracting the same, it is to be noted that this spring 36 is not absolutely necessary, since, by seizing the upper end of the primary plunger 24, the tread 10 may be moved from the position shown in Fig. 1 to that shown in Fig. 2. This operation will prove useful in case the resilient means for retracting the tread 10 should become broken accidentally.

It is to be noted that the "back" comprising the back plate 17 and the fingers 19, is held between the rear hangers 8, the fingers 19 being engageable by the latch 20. The back, therefore, constitutes a hanger carried means engageable by the latch.

What is claimed as new is:

1. The combination with the steps of a vehicle, of an auxiliary tread and a back, hingedly united, and each pivotally supported by the steps; a latch hinged to the steps and engageable by the back to hold the tread in advanced position; means for moving the latch to break the engagement between the back and the latch; means for retracting the tread; and means for advancing the tread, whereby in a single operation the tread may be made to protrude beyond the steps and the latch may be made to engage with the back.

2. The combination with the steps of a vehicle, of forward and rear hangers pivotally supported thereon; an auxiliary tread

carried by the hangers; a back carried by the rear hangers; a latch hinged to the steps and engageable by the back to hold the tread in advanced position; means for moving the latch to break the engagement between the back and the latch; means for retracting the tread; and means for advancing the tread, whereby in a single operation the tread may be made to protrude beyond the steps and the latch may be made to engage with the back.

3. The combination with the steps of a vehicle, of forward and rear hangers pivotally supported thereon; an auxiliary tread carried by the hangers; a back carried by the rear hangers; a latch hinged to the steps, and engageable by the back to hold the tread in advanced position; means for moving the latch to break the engagement between the back and the latch; resilient means for retracting the tread; and resilient means for holding the latch normally in back engaging position.

4. The combination with the body and steps of a vehicle; of hangers pivotally supported upon the steps; an auxiliary tread carried by the hangers; a latch pivoted to the steps; hanger-carried means engageable by the latch to hold the tread in advanced position; a lever pivoted in the steps and operatively connected with the latch to break the engagement between the latch and the hanger-carried means; a primary plunger slidable in the body and operatively connected with the tread to advance and retract the same; and a secondary plunger slidable in the body and pivoted to the lever.

5. The combination with the steps and body of a vehicle, of hangers pivotally supported upon the steps; an auxiliary tread carried by the hangers; a latch pivoted to the steps; hanger-carried means engageable by the latch to hold the tread in advanced

position; a lever pivoted in the steps and operatively connected with the latch to break the engagement between the latch and the hanger-carried means; a primary plunger slidable in the body to advance the tread; resilient means for retracting the tread; a secondary plunger slidable in the body and pivoted to the lever.

6. The combination with the steps of a vehicle, of forward and rear hangers pivotally supported thereon; an auxiliary tread supported by the hangers; a back held between the rear hangers; a step supported rod; a helical spring upon the rod having a finger to engage the back to retract the tread; and a latch mechanism to engage the back to hold the step in advanced position.

7. The combination with the steps and body of a vehicle; of bars secured to the steps and extended to the rear of the steps; forward and rear hangers pivoted to the bars; an auxiliary tread carried by the hangers; a back held between the rear hangers; a rod connecting the extended portions of the bars; a helical spring upon the rod having a finger to engage the back to retract the tread; a latch pivoted to the step and engaging the back to hold the tread in advanced position; step carried resilient means for holding the latch in back-engaging position; a step carried lever engaging the latch to break the engagement between the latch and the back; a body supported plunger connected with the lever; and means for advancing the tread.

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

GEORGE S. WATTS.

Witnesses:

A. R. BOKER,

W. R. WINBURN.