H. D. KIRKLEY.

FOLDABLE OR EXTENSIBLE CAR STEP.

APPLICATION FILED APR. 22, 1913.

1,067,821. Patented July 22, 1913.

2 SHEETS—SHEET 1.

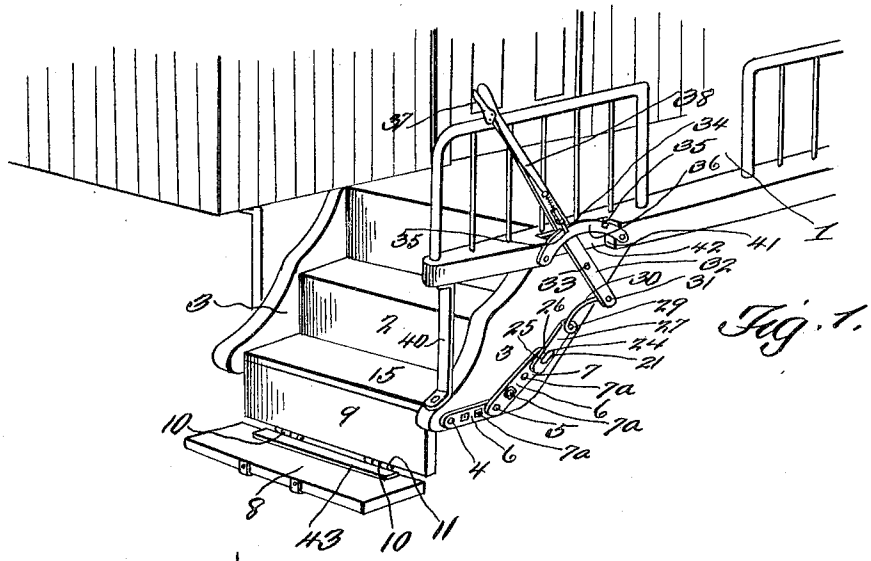


Fig. 1.

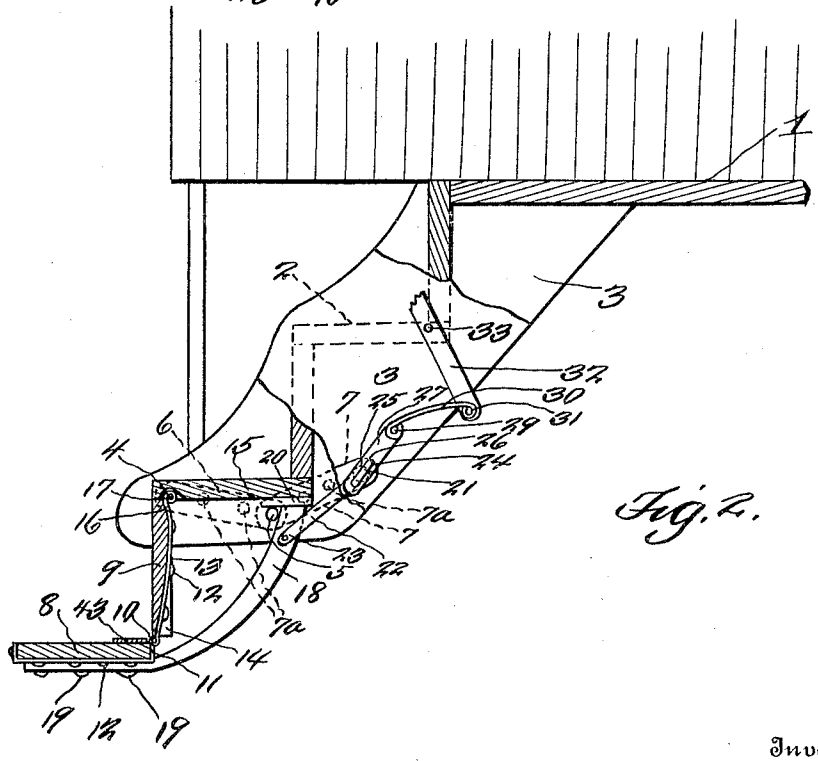


Fig. 2.

Witnesses

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Fig. 3.

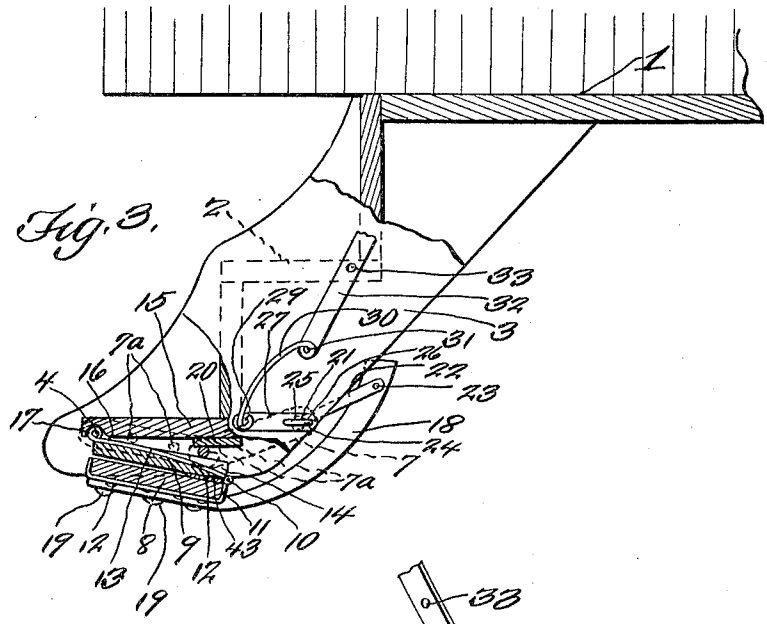
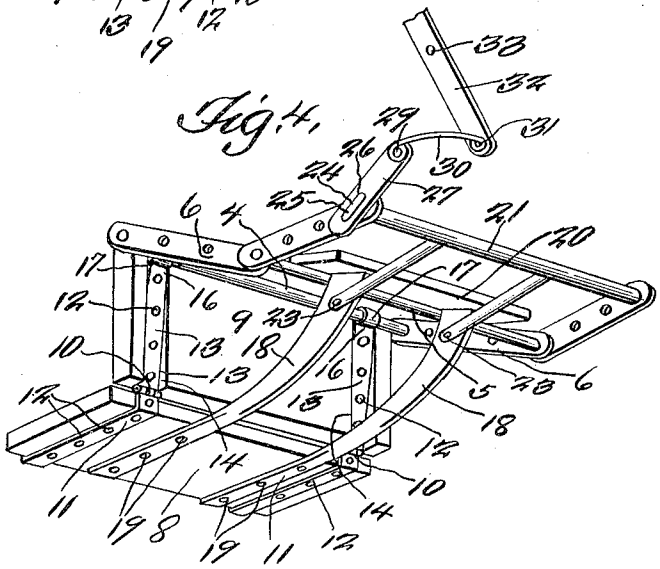


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

HIRAM D. KIRKLEY, OF PARAGOULD, ARKANSAS, ASSIGNOR OF ONE-THIRD TO G. O. LIGHT, OF PARAGOULD, ARKANSAS.

FOLDABLE OR EXTENSIBLE CAR-STEP.

1,067,821. Specification of Letters Patent. Patented July 22, 1913.

Application filed April 22, 1913. Serial No. 762,804.

To all whom it may concern:

Be it known that I, HIRAM D. KIRKLEY, a citizen of the United States, residing at Paragould, in the county of Greene and State of Arkansas, have invented a new and useful Foldable or Extensible Car-Step; and I 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.

This invention relates to a new and useful improved folding or extensible car step.

Heretofore there has been experienced a great many inconveniences and disadvantages by the use of a step box or stool for allowing passengers ascending or descending the steps of the platform of a car, especially railway cars. For instance, when a train has been backed into the shed, it often occurs that the engine is subsequently coupled thereto, and in accomplishing the same the train is moved or disarranged from its previous position, thereby necessitating the conductor or porter to move the step box or stool accordingly. Furthermore, it often occurs that the conductor or porter may not place the stool or step box in the proper position, and when such is the case, a passenger may invariably step upon the stool or box near the edge causing the same to tilt, which would result in the passenger or other person falling thereby sustaining a broken leg or sprain, or other injuries.

An object of this invention is to avoid such numerous inconveniences and disadvantages, by providing an improved folding or extensible step carried by the usual stationary steps of the car adapted to be extended or unfolded, in order to facilitate the ascension and descension of passengers, and after the passengers have all boarded the train, the step may be folded back in place, immediately prior to the starting of the train.

In practical fields it may be found necessary to subject the details of construction to alterations, to which the patentee is entitled, provided the alterations fall within the scope of what is claimed.

The invention comprises further features and combination of parts, as hereinafter set forth, shown in the drawings and claimed.

In the drawings:—Figure 1 is a view in perspective of a portion of a platform of a car, showing the folding or extensible step as applied thereto, showing same extended. Fig. 2 is a sectional view of Fig. 1. Fig. 3 is a sectional view showing the step folded. Fig. 4 is an enlarged detail perspective view of all the operating parts essential to the folding step detached.

Referring more especially to the drawings, 1 designates the platform of the car having the usual steps 2. Extending through the sides 3 of the steps 2 are the rods 4 and 5, the extremities of which are mounted in bearings of the strap irons 6, which are secured to the sides of the steps as at 7^a, there being nuts upon said rods 4 and 5 to hold them in place. The straps 6 and 7 not only act as bearings for the rods, but also as reinforcing and strengthening means for the sides of the steps. The folding step comprises the tread board 8 and the rise board 9, which are hinged together as at 10 by the leaf hinges 11, which are secured to the tread and rise boards 8 and 9, as at 12. The leaves 13 of said hinges are embedded or countersunk in the recesses 14 in the rear of the rise board, especially to allow the rise board to fold in close position to the tread 15 of the steps 2. The upper ends 16 of the leaves 13 terminate in rolls 17 to receive the rod 4, thereby pivotally mounting the rise board 9. The rod 5 not only acts as a strengthening medium for the ordinary steps 2, but also as an abutment, against which the end portion of the curved arms 18 (the lower portions of which are secured at 19 to the tread board 8) contacts, to assist in limiting the arms as well as the tread and rise boards in their extensible positions.

The under face of the tread board 15 of the steps 2 adjacent the rod 5 is provided with a face plate 20, which performs the double-fold purpose of a wear plate and an abutment plate for the upper extremities of the arms 18. Mounted in bearings of the side 3 of the steps 2 and the strap iron 7 is a rock shaft 21 having arms 22, which are pivoted at 23 to the arms 18, which have a certain amount of resiliency or spring. The end 24 of the rock shaft is flattened, as shown at 25 and is adapted to be received in the slot 26 of the arm 27. The extreme portion of the flattened end is flattened to prevent the arm 27 from displacement. This arm 27 is positioned between the flattened end and the strap iron 7, so as to prevent

wear upon the side of the step. The arm 27 is provided with a laterally extending lug 29 forming a pivot for one end of the link 30, which in turn at 31 is pivoted to the lower end of the lever 32. The lever 32 is pivotally mounted at 33 to one of the sides of the car steps. The pivots between the arms 18 and 22 are so arranged relative to the pivot between the link 30 and the lug 29, that when the folding step is folded, said pivots between the arms 18 and 22 and the pivot of the link on the lug 29 will be out of alinement with the rock shaft, thereby partly acting to hold the extensible tread and rise boards folded.

To mainly hold the extensible step folded, the lever 32 is provided with a dog 34 to coöperate with either one of the notches 35 of the segment bar 36, for holding the extensible step folded or extended. This dog 34 is operated by a hand grip 37 on the lever 32, to disconnect the dog from either one of the notches, there being a rod connection 38 between the hand grip and the dog. A side bar 39 of the platform braced relative to the steps by the bar 40, is provided with a recess 41 having a facing wear plate 42 against which the lever 32 contacts, the lever moving in said recess.

From the foregoing it is apparent, there has been devised a simple and efficient extensible or folding car step, and one which will facilitate the ascension and descension of passengers from the car to the platform in a practical manner.

The upper face of the tread board 8 adjacent its hinge connections is provided with a wear plate 43.

The invention having been set forth, what is claimed as new and useful is:—

1. In combination with the platform steps of a car, a pivot rod mounted in bearings on the sides of said steps adjacent the lower tread thereof, an extensible step comprising tread and rise boards, leaf springs hingedly connecting said tread and rise boards, a leaf of each leaf spring being embedded in the rise board and having its upper end terminating in a roll to receive said pivot rod, upwardly and rearwardly curved spring arms connected to the tread board, and means connected to said arms for extending or folding said hingedly connected tread and rise boards.

2. In combination with the platform steps of a car, a pivot rod mounted in bearings of the sides of said steps adjacent the lower tread thereof, an extensible step comprising tread and rise boards, leaf springs hingedly connecting said tread and rise boards, a leaf of each leaf spring being embedded in the rise board and having its upper end terminating in a roll to receive said pivot rod, upwardly and rearwardly curved spring arms connected to the tread board, a rock shaft having arms connected to the spring arms, and means for rocking said shaft.

3. In combination with the platform steps of a car, a pivot rod mounted in bearings of the sides of said steps adjacent the lower tread thereof, an extensible step comprising tread and rise boards, leaf springs hingedly connecting said tread and rise boards, a leaf of each leaf spring being embedded in the rise board and having its upper end terminating in a roll to receive said pivot rod, upwardly and rearwardly curved spring arms connected to the tread board, a rock shaft having arms connected to the spring arms, one end of said rock shaft having a flat portion, an arm secured upon said flat portion, and an operating lever having link connections with the arm of said flat portion for rocking the said shaft, and means for holding the lever in adjusted positions to hold the tread and rise boards folded or extended, the pivotal connections between the spring arms and the arms of the rock shaft and the pivot between the link and the arm of the flat portion being in offset arrangement to said rock shaft to assist in holding said boards folded, the said spring arms being placed under tension when folding said tread and rise boards.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HIRAM D. KIRKLEY.

Witnesses:
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W. O. POOLE.

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