G. B. MILLIKEN & A. B. WEAVER.

AUXILIARY PASSENGER CAR STEP.

APPLICATION FILED JAN. 26, 1909.

937,084. Patented Oct. 19, 1909.

Fig. 1.

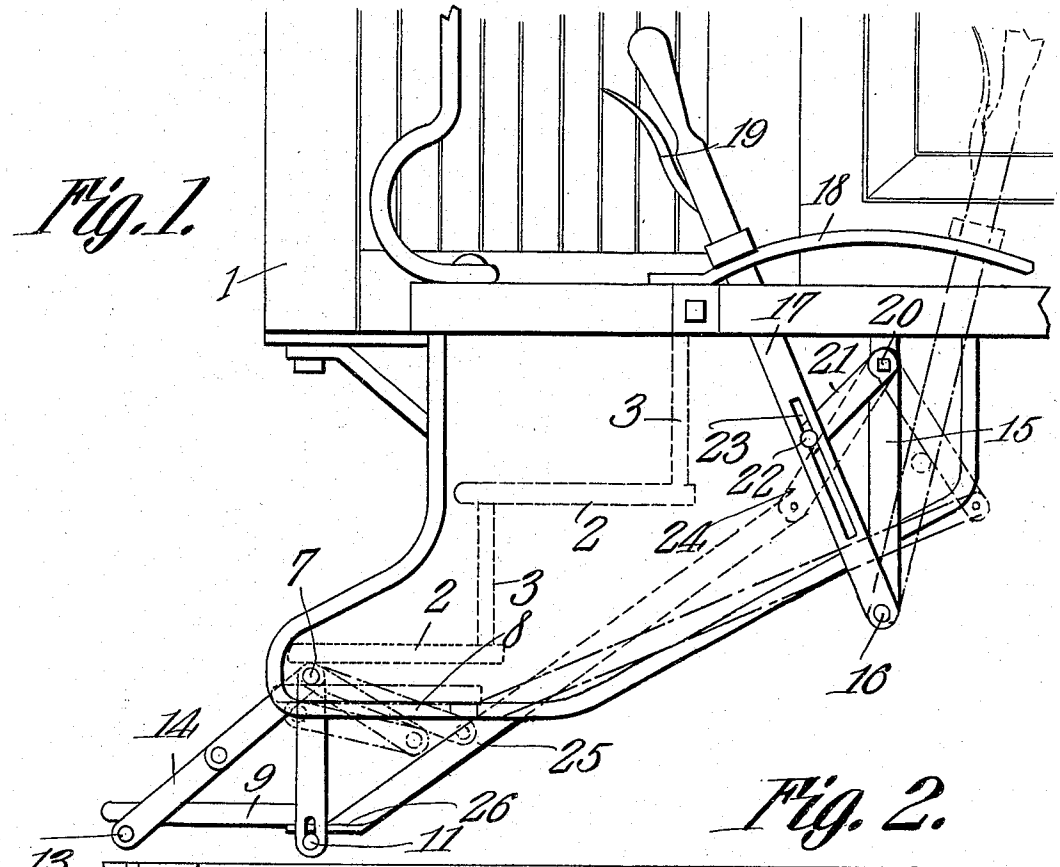
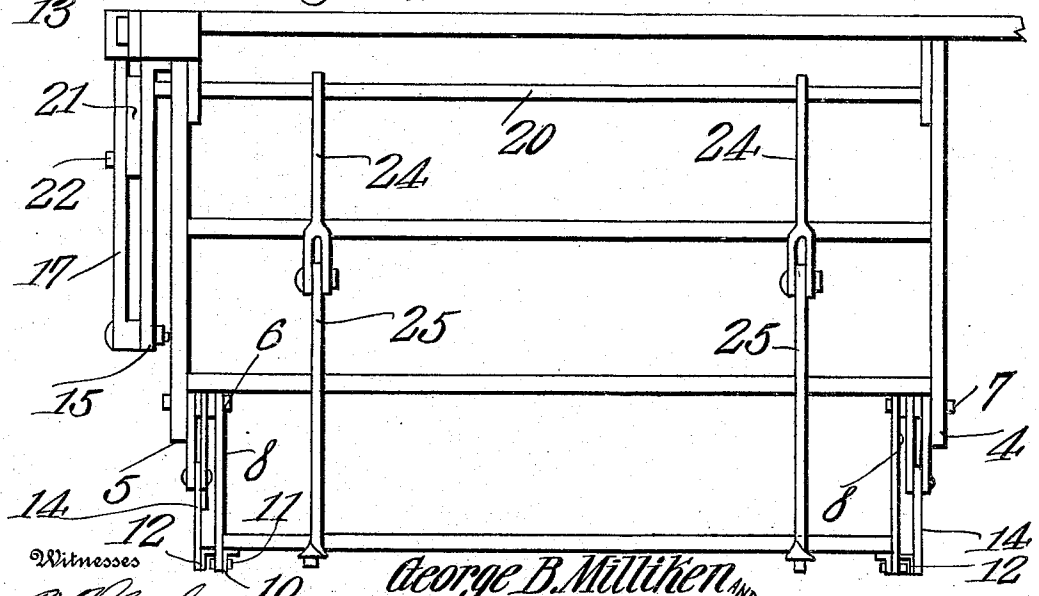


Fig. 2.



Witnesses

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AUXILIARY PASSENGER-CAR STEP.

937,084. Specification of Letters Patent. Patented Oct. 19, 1909.

Application filed January 26, 1909. Serial No. 474,324.

To all whom it may concern:

Be it known that we, GEORGE B. MILLIKEN and ARTHUR B. WEAVER, citizens of the United States, residing at Bethlehem, in the county of Northampton and State of Pennsylvania, have invented a new and useful Auxiliary Passenger-Car Step, of which the following is a specification.

This invention relates to improvements in folding steps, such as are used in connection with railway passenger cars.

One object of the present invention is to provide a step equipped with a suitable hanger and support which can be folded simultaneously with the step.

Another object is to provide a construction simple in operation and having comparatively few working parts so assembled that the tendency of the same to become deranged will be reduced to a minimum.

With these and other objects in view as will more fully hereinafter appear, the present invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in that portion of this instrument wherein patentable novelty is claimed for certain distinctive features of the device, it being understood that, within the scope of what hereinafter is thus claimed various changes in the form, proportion, size and minor details of the device may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, forming part of this specification Figure 1 is a section through the steps of a car showing my device and the operating mechanism therefor. Fig. 2 is a rear elevation of the same.

Similar numerals of reference are employed to designate corresponding parts throughout.

In the construction illustrated, a car 1 is shown to be equipped at one end with the usual treads 2, and lifts 3, which constitute the steps at either side of which are secured the side boards 4, and 5, the lower ends of which extend below the lower tread, and are each provided with an opening adjacent the lower face of the lower tread, into which fits the bolts or pins 6, and 7. These bolts or pins form a support for the folding mechanism of the device which in the present instance consists of a pair of hangers 8, having one end provided with an opening to fit the pins. An auxiliary step 9, is shown of slightly less length than the treads 2, which at either end and adjacent its inner side is provided with an angular bracket 10, disposed on the lower face of the auxiliary step, the free ends of which are provided with a pin 11, for the reception of the opposite end of the hanger 8. With this construction it is obvious that a pivoted step has been provided, it being understood that the length of hanger 8, will be approximately the same as the height of the lifts 3. The auxiliary step 9, is further provided at either end and adjacent the outer side, with an angular bracket 12, and pin 13, the outer edges of which project beyond the plane of the brackets and pins 10, and 11, and enter one end of a pair of folding or jointed links 14, the opposite ends of which are mounted on the pins 6, and 7, and interposed between the hanger 8, and inner faces of the side boards 4, and 5. The links constitute a support for the auxiliary step so that when the hanger is vertical the step will be supported in a horizontal position as shown.

The step operating mechanism in the present instance is shown to embody a means for operating the step from the car platform, and consists of a supporting bar 15, one end of which is suitably secured to the lower face and adjacent the outer edges of the car platform. Adjacent its lower end and on its outer face the bar is provided with a pin 16, which forms a pivotal support for one end of a lever 17, the opposite end of which extends through a rack 18, secured on the upper face of the platform. The upper end of the lever is provided with a sliding pawl normally held in engagement with the rack 18, by a spring (not shown) and adapted to be lifted from engagement with the rack by means of the usual handle 19. Journaled into the supporting bar 15, adjacent the upper end thereof is one end of a shaft 20, rectangular in cross section, and the opposite end of which is journaled in a suitable bracket secured to the inner face of the side board 4. This shaft 20, is of a length sufficient to project a trifle beyond the outer face of the supporting bar, and keyed to this projecting end is one end of a crank 21, provided on its outer face and adjacent the opposite end with a crank pin 22, which enters a longitudinal slot 23, formed in the lever

17. Thus it will be seen when the lever is moved to the right or left on its pivot 16, rotary motion will be communicated to the shaft through the crank 21.

Interposed between the side boards 4, and 5, and keyed to the shaft 20, are a pair of arms 24, of the same length as the hangers 8. Connection is established between the arms and the auxiliary step by means of the connecting rods 25, the lower ends of which are each provided with an angular extension 26, adapted to be rigidly secured to the lower face, and adjacent the opposed ends of the auxiliary step, while the upper end of each rod is pivotally connected to the lower end of one of the arms 24.

With this construction it is obvious that when the parts occupy the positions shown by full lines in Fig. 1, a movement of the lever 17, to the right will turn the crank 21, and shaft 20, the latter will rock the arms 24, and in so doing the pivoted ends of the rods 25, will be slightly depressed while the opposite ends will be slightly elevated thereby causing the jointed links 14, to rock inwardly, or toward the vertical center of the car. As the movement of the lever is continued toward the right, the arcs described by the hangers 8, and arms 24, will be equal so as to permit the auxiliary step to ascend beneath the lower tread 2, of the main steps, as shown by dotted lines Fig. 1.

What is claimed is:—

1. The combination with a car body and fixed steps, of an auxiliary step pivotally assembled with the fixed steps; a depending bar rigidly mounted at its upper end upon the car body; a longitudinally slotted lever pivoted at its lower end to the bar; a shaft journaled for rotation in the bar; a crank rigidly assembled with the shaft; a crank pin carried by the crank and arranged to reciprocate in the slot of the lever; and means operatively uniting the shaft and auxiliary step for retracting the auxiliary step beneath the fixed steps upon the rotation of the shaft.

2. The combination with a car body and fixed steps, of an auxiliary step pivotally assembled with the fixed steps; and means for retracting the auxiliary step beneath the fixed steps, comprising a depending bar rigidly mounted at its upper end upon the car body; a longitudinally slotted lever pivoted at its lower end to the bar; a shaft journaled for rotation in the bar; a crank rigidly assembled with the shaft; a crank pin carried by the crank and arranged to reciprocate in the slot of the lever; an arm rigidly assembled with the shaft; and a connecting rod terminally assembled in pivotal relation with the auxiliary step and with the arm.

3. The combination with a car body and fixed steps, of hangers depending pivotally from the fixed steps; an auxiliary step pivotally assembled with the lower ends of the hangers; folding rods assembled terminally in pivotal relation with the hangers and with the auxiliary step; means for retracting the auxiliary step beneath the fixed steps, comprising a depending bar rigidly mounted at its upper end upon the car body; a longitudinally slotted lever pivoted at its lower end to the bar; a shaft journaled for rotation in the bar; a crank rigidly assembled with the shaft; a crank pin carried by the crank and arranged to reciprocate in the slot of the lever; an arm rigidly assembled with the shaft; and a connecting rod terminally assembled in pivotal relation with the auxiliary step and with the arm.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

GEORGE B. MILLIKEN.
ARTHUR B. WEAVER.

Witnesses:
ROBERT McC. TURNER,
EDWIN H. MATHIAS.