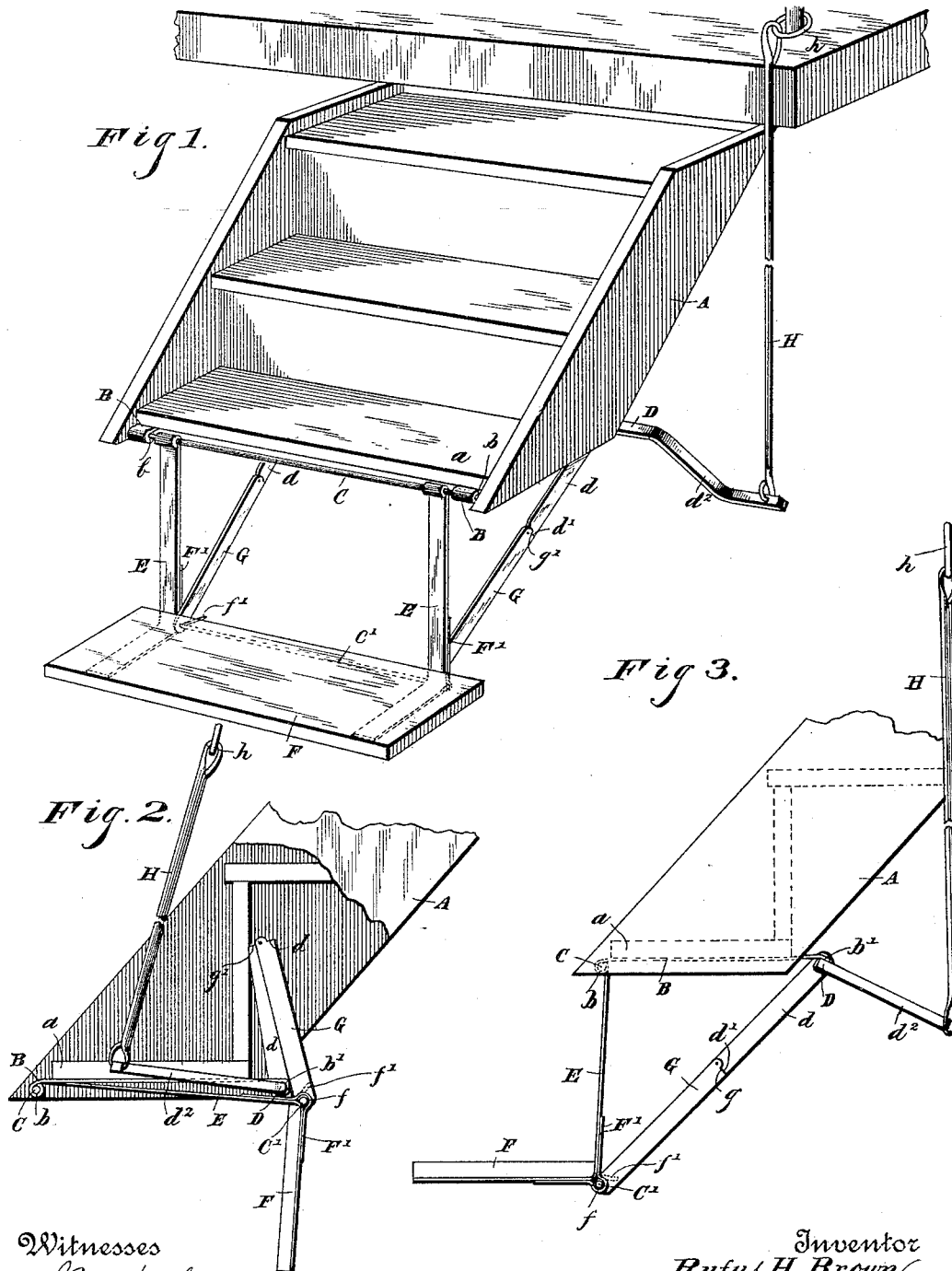


(No Model.)

R. H. BROWN.  
EXTENSION STEP FOR CARS.

No. 419,107.

Patented Jan. 7, 1890.



Witnesses

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# UNITED STATES PATENT OFFICE.

RUFUS H. BROWN, OF MARION, VIRGINIA.

## EXTENSION-STEP FOR CARS.

SPECIFICATION forming part of Letters Patent No. 419,107, dated January 7, 1890.

Application filed October 25, 1889. Serial No. 328,139. (No model.)

### *To all whom it may concern:*

Be it known that I, RUFUS H. BROWN, a citizen of the United States, residing at Marion, in the county of Smyth and State of Virginia, have invented a new and useful Extension-Step, of which the following is a specification.

The invention relates to improvements in extension-steps for passenger-coaches.

The object of the present invention is to provide an extension-step of simple and inexpensive construction, adapted to be easily operated, and which when not in use may be folded beneath the steps, and which will not interfere with the use of elevated platforms.

The invention consists in the construction and novel combination and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of an extension-step constructed in accordance with the invention, showing the parts in position for use. Fig. 2 is a side elevation, partly in section, showing the step folded. Fig. 3 is a similar view illustrating the parts in the position shown in Fig. 1.

Referring to the accompanying drawings by letter, A designates the steps of a passenger-coach, the lower one *a* of which has secured to it near its ends bars B, which are provided at their ends with bearings *b b'*, adapted for the reception of a rod C and a rock-shaft D.

Hinged to the rod C by means of stirrups E, is an extension-step F, which is connected by links G to arms *d* of the rock-shaft D, whereby when the rock-shaft is turned the extension-step F is drawn up beneath the steps of the passenger-coach, or extended from that position to a point beneath the steps when it is ready for use. The stirrups F' are provided at their angles, where they are bent around the rear of the extension-step, with bearings *f*, which are formed by strips suitably secured to the stirrup and receive a rod C', to which the links G are hinged, and small pins or stops *f'* project from the rear edge of the extension-step and prevent lateral movement of the links. The links are pivoted to the ends of the arms *d*, which are rigidly attached to the rock-shaft D, and both

the arms and links are provided, respectively, with shoulders *d'* and *g'*, which are adapted to engage each other and limit the movement of the arms and links, whereby the latter are adapted to form a straight brace and prevent the step from accidentally slipping or folding. One end of the rock-shaft D is provided with a crank *d<sup>2</sup>* to which is attached a rod H, extending to railing of car-steps, by means of which the extension-step is operated. The upper end of the operating-rod H is provided with a ring or link *h*, which slides upon the railing, and the said rod not only operates the extension-step, but also prevents the step accidentally closing or opening.

From the foregoing description and the accompanying drawings the construction, operation, and advantages of the invention will readily be seen; and I desire it to be understood that I do not limit myself to the precise details of construction herein shown and described, as I may, without departing from the spirit of the invention, make minor changes, such as connecting all the extension-steps of a car to a single operating-lever.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the extension-step provided with stirrups designed to be hinged to the steps of a passenger-coach, the rock-shaft provided with arms *d*, and the links connecting said arms with the extension-step, whereby when the rock-shaft is turned the extension-step will be folded beneath the steps of a passenger-coach, substantially as specified.

2. The combination of the bars B, designed to be secured to the steps of a passenger-coach, and provided with the bearings *b b'*, the rod C, secured in the bearing *b*, the extension-step provided with stirrups hinged to said rod, the rock-shaft journaled in the bearings *b'* and provided with arms, and the links G, pivoted to the arms and the extension-step, substantially as described.

3. The combination of the bars B, provided with the bearings *b b'*, the rod C, secured in the bearings *b*, the stirrups hinged to the rod C and provided with bearings *f*, the rod C, secured in the bearings *f*, the rock-shaft jour-

naled in the bearings *b'* and provided with arms *d*, and the links *G*, hinged to the rod *C'* and pivotally connected to the arm *d*, substantially as described.

- 5 4. The combination of the bars *B*, provided with bearings *b* and *b'*, the rod *C*, secured in the bearings *b*, the stirrups hinged to the rod *C* and provided with bearings *f*, the extension-  
10 step secured to the stirrups, the rock-shaft *D*, journaled in the bearings *b'* and provided with arms *d*, having shoulders *d'*, the links *G*, pivotally connected to the arms *d* and provided with shoulders *g'* and hinged to the  
15 rod *C'*, and small pins or stops projecting from the extension-step and preventing lateral movement of the links, substantially as described.

5. The combination of the extension-step provided with stirrups hinged to the steps of a passenger-coach, the rock-shaft provided 20 with arms *d*, the links connecting the arms and extension-step, and the operating-rod *H*, having its lower end attached to the rock-shaft and its upper end provided with a ring, substantially as and for the purpose described. 25

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

RUFUS H. BROWN.

Witnesses:

S. C. PAINTER,  
W. E. LEONARD.