

(No Model.)

2 Sheets—Sheet 1.

G. C. HADLEY.

CAR STEP.

No. 315,024.

Patented Apr. 7, 1885.

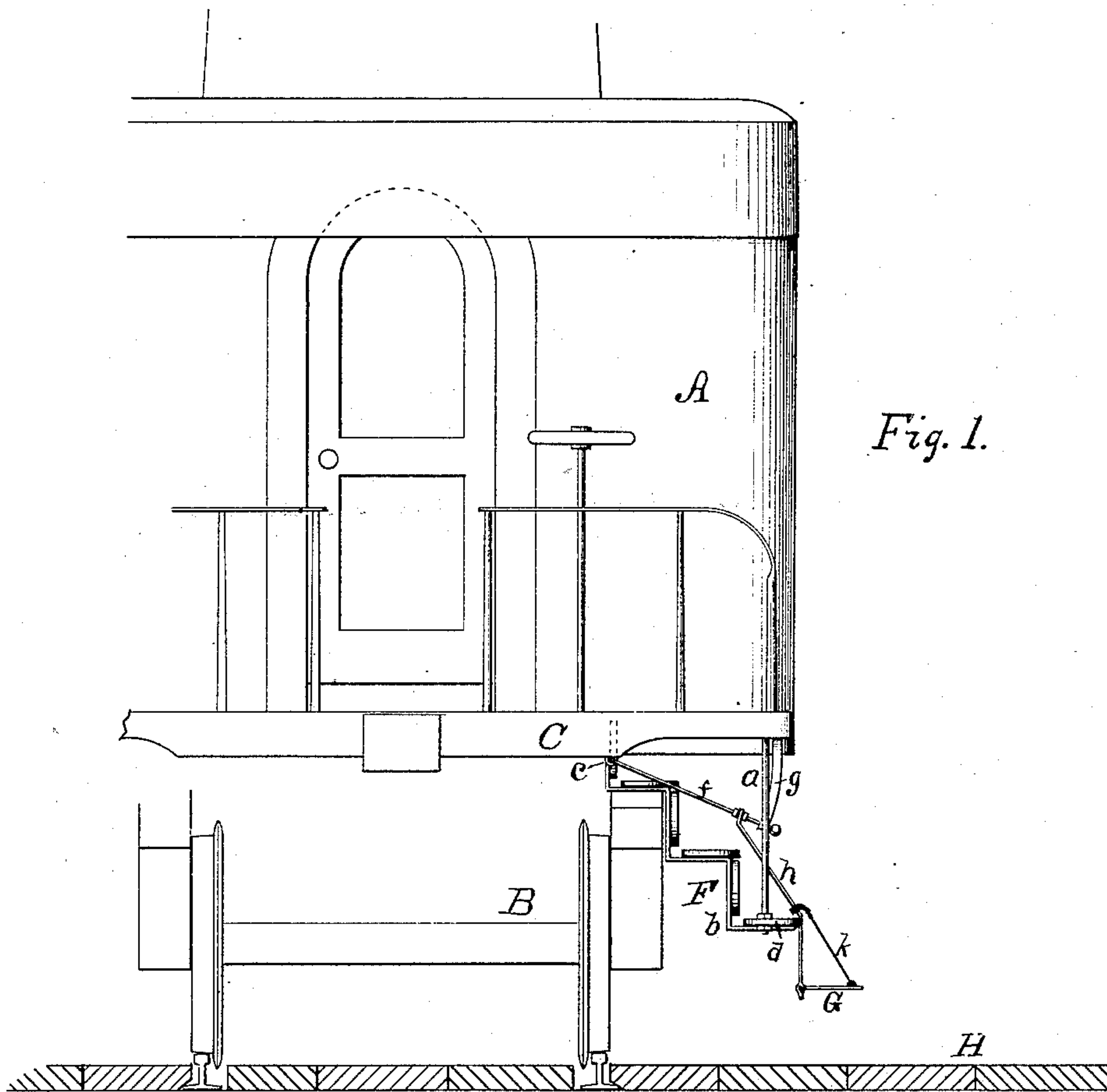


Fig. 1.

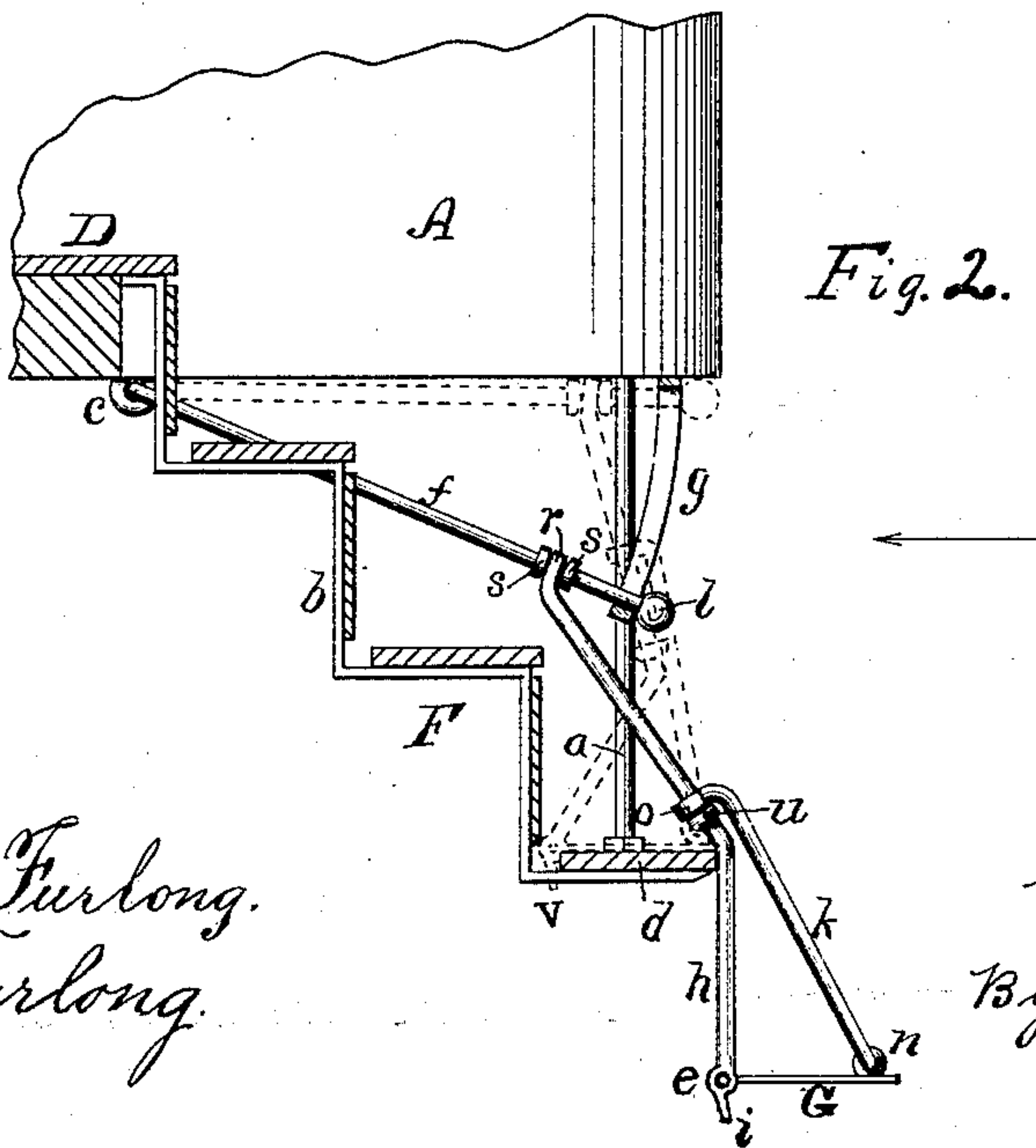


Fig. 2.

Attest:

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Inventor:

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By E. B. Whitmore,
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(No Model.)

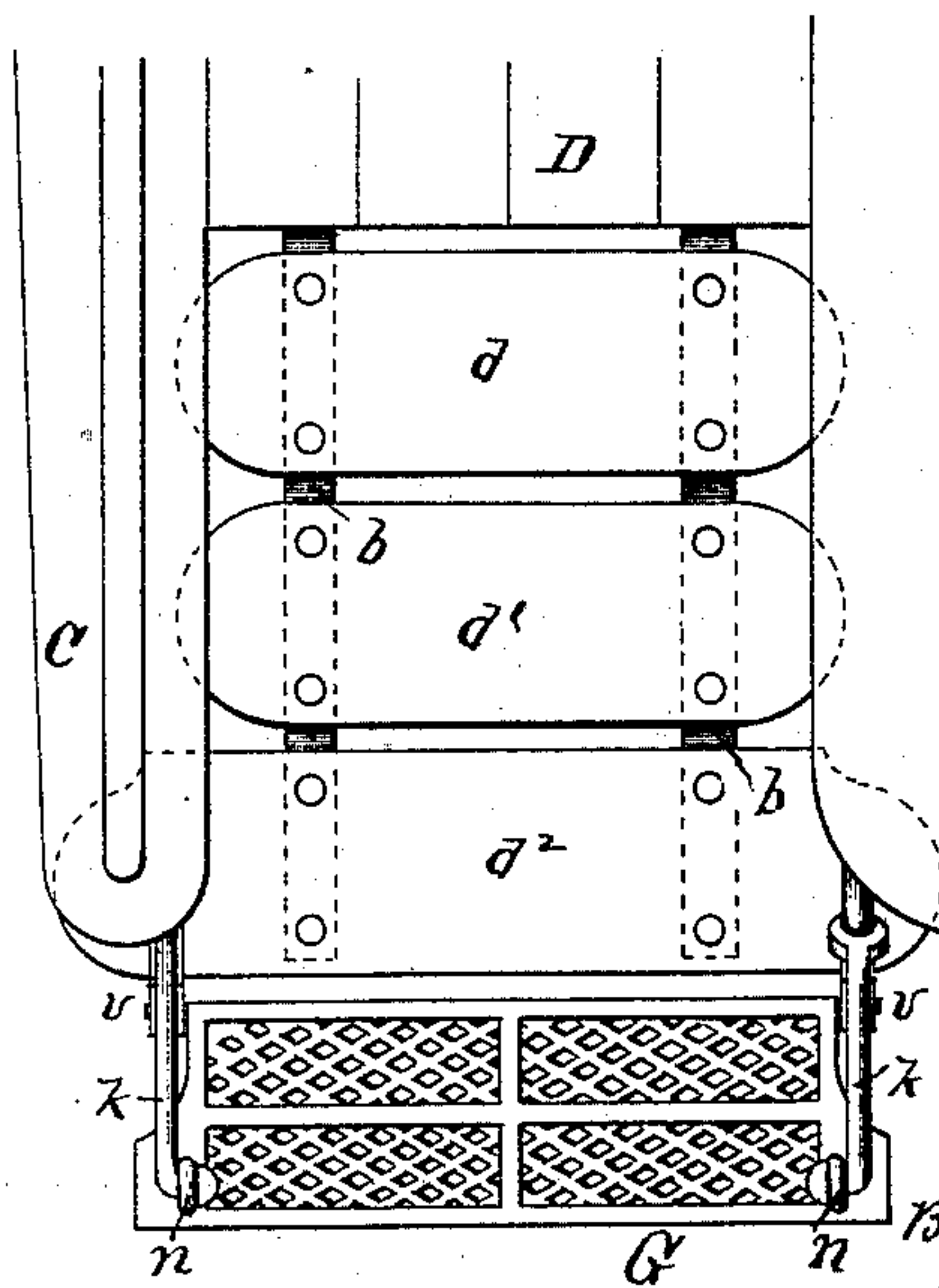
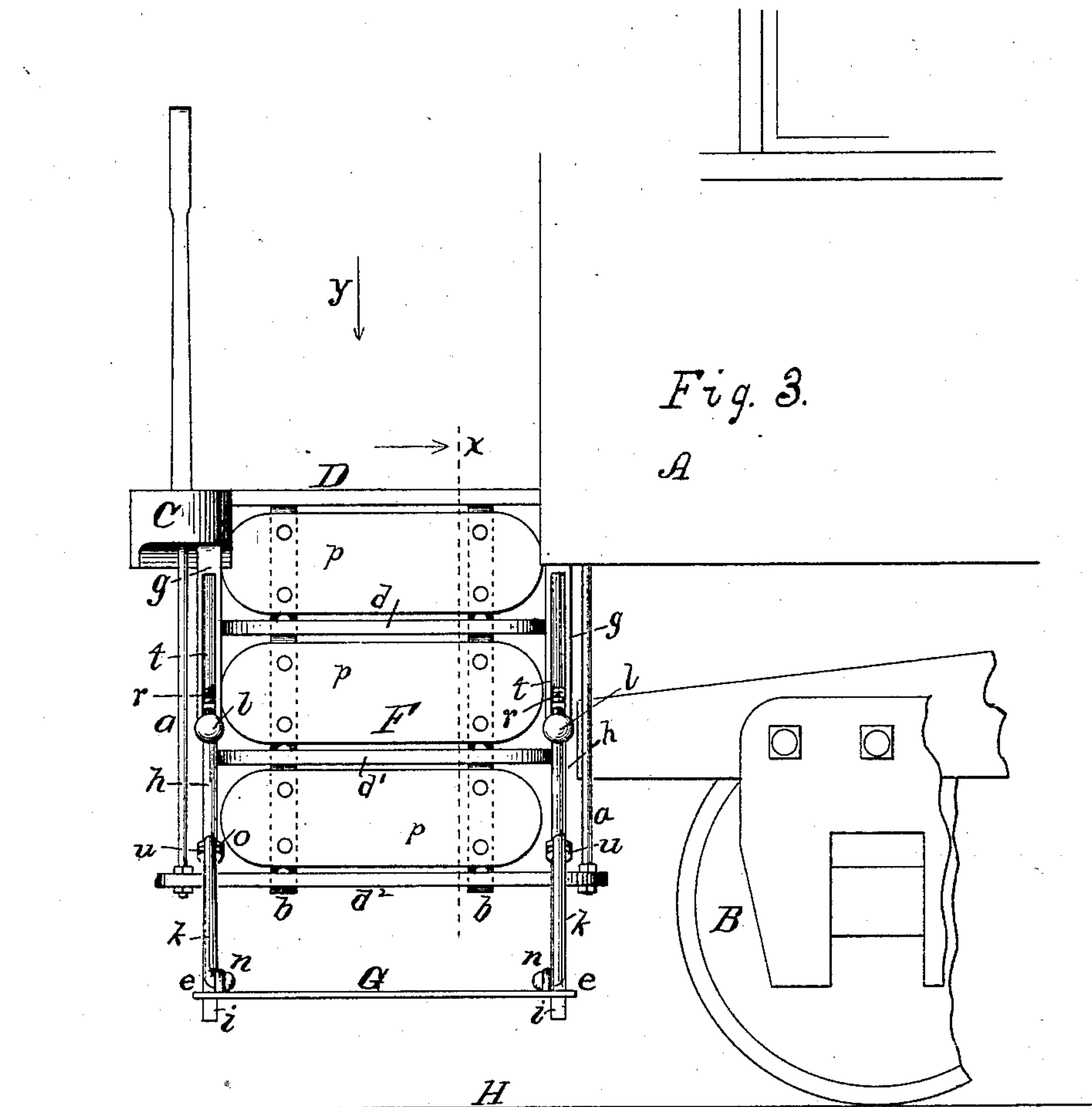
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

GEORGE C. HADLEY, OF MUMFORD, NEW YORK.

CAR-STEP.

SPECIFICATION forming part of Letters Patent No. 315,024, dated April 7, 1885.

Application filed February 11, 1885. (No model.)

To all whom it may concern:

Be it known that I, GEO. C. HADLEY, of Mumford, in the county of Monroe and State of New York, have invented a new and useful
5 Improvement in Extension-Steps for Railway-Cars, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

My invention relates to the steps of railway-cars generally, and more particularly to the steps of sleeping and chair coaches; and the object of the invention is to produce an adjustable or extension step to be conveniently
10 dropped in position below and in front of the fixed lower step of the coach, as commonly constructed, to assist persons to enter the coach from a depot-floor level with the track, thus dispensing with the stepping-stool commonly used.

20 The invention consists in parts arranged and combined as fully set forth in the following specification and more particularly pointed out in the claims.

Referring to the drawings, Figure 1, Sheet 1, is an end elevation of a portion of an ordinary sleeping-coach, showing the flight of steps at one side thereof with my improved extension-step attached in place, parts not essential to the figure being omitted; Fig. 2, a similar view of the flight of steps of the coach
30 drawn to a scale twice the size, and showing the steps and a portion of the platform transversely sectioned, as upon the dotted line *x* in Fig. 3, the extension-step and parts sustaining it being shown in position for use in full lines and folded, as when not in use, in dotted lines; Fig. 3, Sheet 2, a side elevation of the flight of steps viewed as indicated by arrow in Fig. 2, drawn to further show the
40 forms of the parts that hold and sustain the extension-step in place; and Fig. 4, a plan of the same flight of steps viewed as indicated by arrow *y* in Fig. 3, drawn to further show the extension-step and its supporting mechanism.
45

Referring to the parts that are old, A is the body of a sleeping-coach or other passenger-car; B, the truck; C, the bumper-timber; D, the platform, and F the flight of steps leading thereto. The step-boards *d*, *d'*, and *d''* and the risers *p*, forming the flight, are supported

upon parallel angle-irons *b*, extending downward from the platform, there being vertical stays *a* extending, respectively, from the end of the bumper-timber and the body of the coach
55 downward to connect with the lower step, *d''*, of the flight. The steps and risers are secured to the angle-irons *b* by simple bolts or screws, all of which parts are of common construction.

G is the new extension-step I add at the bottom of the flight of steps F, leading to the platform of the car, which serves to substantially divide the distance between the floor H of the depot and the lower fixed step, *d''*. This step may be made of wood, like the other steps of
65 the flight; but I prefer to make it of metal, substantially as shown, and support it in place for use by the following means.

f are two similar lever-rods held movably at one end in eyelets *c*, secured, respectively, to the under surfaces of the bumper-timber
70 and the body of the car, so that their free ends may be swung upward and downward in vertical planes.

g are two similar curved slotted hangers pendent from the bumper-timber and body of the car, respectively, in position to receive the outer ends of the lever-rods *f*, and form confining-guides, within the slots *t* of which said lever-rods make their vertical movements.
80 The lever-rods *f* terminate in knobs or short handles *l* outside of the guides *g*, which may be seized by the attendant in raising the step G, as will hereinafter be more fully explained.

h h are a pair of suspension-rods, alike in all respects, attached with movable joints
85 *r* to the lever-rods *f*, respectively, at points near to and within the guide-pieces *g*. At their lower ends these rods are each provided with eyes or orifices *e e*, in which rest trunnions *v*, extending laterally in opposite directions from the ends of the extension-step G, by which means the rear part of the step is supported.

k k are another pair of rods or suspension-braces secured movably at their lower ends in eyelets *n n* of the extension-step, which braces extend obliquely upward and connect with the suspension-rods *h h* by means of freely-sliding eyelets or loops *o o*, by means of which
95 100 braces the forward part of the step is supported. The suspension-rods *h h* are attached

to the lever-rods *f f* between burrs *s s*, rigid with the latter, sufficient play being allowed between said rods *h h* and *f f* to permit of the movements of the parts necessary in changing the position of the step *G*, described farther on. Burrs *u u*, rigid with the rods *h h*, below the eyelets *o o* of the braces *k k*, form stops for the latter in their downward movements and allow said braces to slide downward along the rods *h h*, only sufficiently to hold the step *G* in a horizontal position. The suspension-rods *h h* and braces *k k* are made of such lengths and forms as to hold the step *G*, when adjusted for use, in such position that the vertical distance between it and the step *d*² is the same as that between the latter step and the step *d'*, or between the steps *d'* and *d*; also, to hold the step *G* forward of the step *d*² at about the same distance at which either of the rigid steps of the flight is forward of the one next above it. On these accounts the step *G* becomes substantially a regular step of the flight *F*, and when thus held greatly assists passengers to mount the fixed steps of the car.

When not in use, the step *G* is raised to the position shown in dotted lines in Fig. 2, in which it lies flat upon the lower fixed step, *d*², and, being quite thin, does not interfere with the use of the latter step by persons going up and down the flight.

In the act of raising the step to its position of non-use (shown in dotted lines) the balls or handles *l l* of the lever-rods are grasped by the attendant and carried upward, the step swinging back from gravity to the position indicated. Small points *i i* of the rods *h h*, extending downward below the under surface of the step *G*, pass down in the opening *a'*, back of the step *d*², when said step *G* is withdrawn from use, which points serve to prevent the latter step becoming displaced by the jar of the car when in motion, or from other causes. When the step *G* is raised to the position upon the step *d*², as stated, the loops *o o* of the braces *k k* slide upward along the rods *h h*, and the movableness of the joints or rod-connections at *r*, *o*, *e*, and *n* permits the easy movement of the step from either position to the other.

The parts of the suspending mechanism for the step *G* are located on one side under the bumper-timber, and on the other side under the body of the car, and consequently are out of the way of persons passing up or down the flight in either position of the step.

When the adjustable step is brought into position for use, it is simply raised by the attendant from the step *d*² sufficiently to bring the points *i* out of the space *a'* back of the step *d*², and brought forward off said step *d*² and let down to the place shown in full lines. This adjustable step is not needed when the car stands at the side of an elevated platform; but generally passengers are required to enter the coaches from depot-floors on a level with the track. In such cases the auxiliary step is very useful and convenient, as the distance from such floors to the lower step of the fixed flight is too great to be overcome by a single reach of the foot.

What I claim as my invention is—

1. In combination with the steps of a railway-coach, the supporting-rods *f f* and guides *g g*, secured to the coach, the adjustable step *G*, with suspenders *h h*, and braces *k k*, for supporting said step, substantially as shown and described.

2. In combination with the adjustable step *G* of a railway-coach, the suspension-rods *h h*, each connected by a movable joint with said step, and the braces *k k*, attached by movable connections with the step, the said braces being connected at their upper ends with the suspension-rods *h h* by sliding loops or joints *o*, substantially as and for the purpose set forth.

3. In combination with the fixed step *d*² of a flight of steps of a railway-coach, the suspension-rods *h h* and braces *k k*, for supporting the adjustable step *G*, the said suspension-rods being provided at their lower ends with the downward-projecting points or studs *i i*, substantially as and for the purpose set forth.

4. In combination with the fixed steps of a railway-coach and the adjustable step *G* therefor, the lever-rods *f f*, guides *g g*, suspension-rods *h h*, and braces *k k*, the rods *h h* being connected with the lever-rods by movable joints at points within the guides, substantially as shown.

5. The combination, in car-steps, of the suspension-rods *h h*, braces *k k*, and step *G*, the said rods and braces being joined to the step by movable joints, the braces connected with the rods by sliding loops *o o* and burrs *u u* on the rods to form stops for the braces to rest against, substantially as described.

GEO. C. HADLEY.

Witnesses:

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E. B. WHITMORE.