No. 789,805. PATENTED MAY 16, 1905.

A. P. GUNN.

FOLDING CAR STEP.

APPLICATION FILED JULY 22, 1904

Fig. 1.

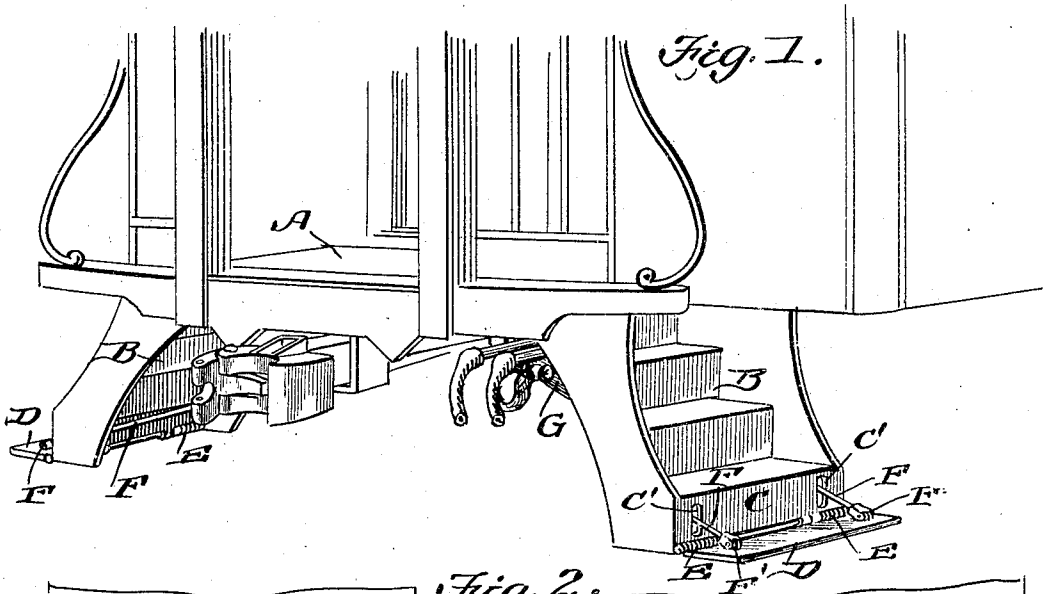


Fig. 2.

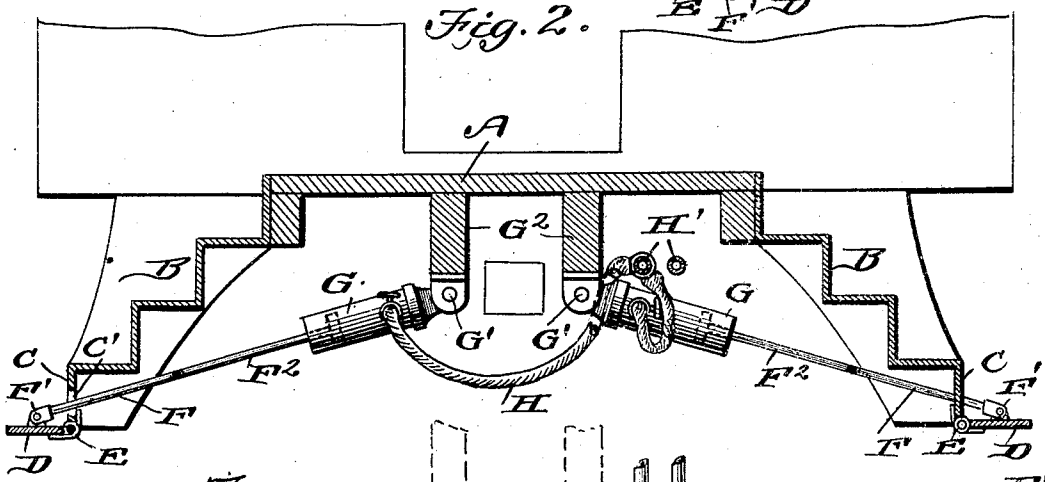
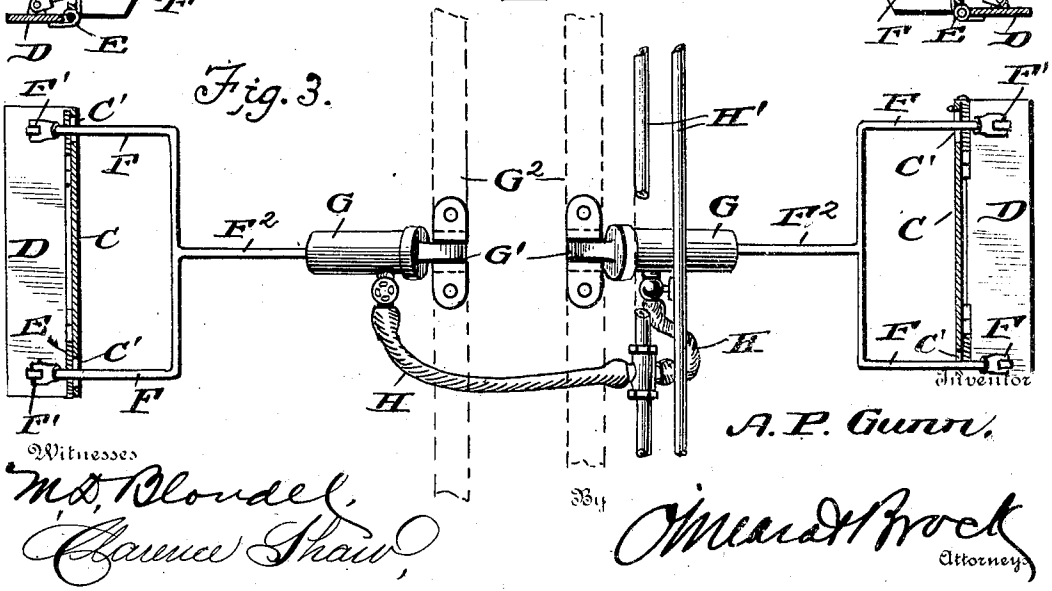


Fig. 3.



Witnesses

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No. 789,805. Patented May 16, 1905.

UNITED STATES PATENT OFFICE.

ALAN PERCY GUNN, OF BALTIMORE, MARYLAND.

FOLDING CAR-STEP.

SPECIFICATION forming part of Letters Patent No. 789,805, dated May 16, 1905.

Application filed July 22, 1904. Serial No. 217,727.

To all whom it may concern:

Be it known that I, ALAN PERCY GUNN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented a new and useful Improvement in Folding Car-Steps, of which the following is a specification.

This invention relates generally to car-steps, and more particularly to a supplemental step arranged at the bottom of the series and adapted to be projected into position for use when the car is at a standstill, so that the ingress and egress from the car is facilitated, as it frequently happens that the car stops at a point where the ordinary bottom step is at a considerable height above the ground.

Another object of the invention is to provide a step which is capable of use in connection with steam or electric railway cars and one in which the supplemental step is ordinarily elevated, so that when the car is moving the said supplemental step will not encounter such objects as switch-stands, station-platforms, and the like.

Another object of the invention is to provide a supplemental step adapted to be projected into position for use by fluid-pressure, either air, steam, or water, as preferred.

With these various objects in view my invention consists, essentially, in hinging the supplemental step to the lower end of a series of steps and providing said supplemental step with a spring which normally holds said step closed and in providing a cylinder beneath the car carrying a piston, the rod of which is connected to the supplemental step, so that when pressure is applied to the cylinder the said step will be projected into position for use.

The invention consists also in pivoting the cylinders and in bifurcating the end of the piston-rod, whereby action of the parts is greatly facilitated.

The invention consists also in certain details of construction hereinafter fully explained and pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a perspective view showing the practical application of my invention. Fig. 2 is a sectional view of the platform, steps, and supplemental steps projected into position for use, the cylinders and piston-rods being shown in elevation. Fig. 3 is a plan view showing the position of the cylinders, piston-rods, and supplemental steps.

In the drawings, A indicates the ordinary platform, and B the usual series of steps, the ordinary bottom step having a riser C extending downwardly therefrom, and hinged to the lower end of this riser is the supplemental step D, the hinged bolt of said step being surrounded by one or more coiled springs E, the purpose of which is to normally hold the supplemental step closed against the supplemental riser C. Each supplemental step has a rod F pivotally connected thereto, as shown at F′, said rods extending rearwardly through the vertically-elongated slots C′, produced in the supplemental riser C, said rods being united to the main rod F^2, which carries a piston upon its inner end, which piston works in a cylinder G, said cylinder being pivoted at its inner end, as shown at G′, to one of the car-timbers G^2.

The piston-rod F^2 and the rods F are practically one and the same, said piston-rod being bifurcated and the members bent into parallel relation, as shown, so that as the piston-rod is moved upwardly by pressure applied to the back of the piston the portions F, acting upon the supplemental step, will cause the same to be lowered and will hold the same lowered so long as pressure is maintained within the cylinder at the rear of the piston.

Pipes H are connected to the cylinders, said pipes being in turn connected to the train-pipe H′, and any suitable construction or means may be employed for controlling the pressure to the cylinders, and it will also be understood that air, steam, water, or any other form of pressure may be employed for the purpose of operating the piston and rods connected therewith.

As before stated, the springs E will hold the supplemental steps firmly closed against the supplemental risers, and when the car stops the valves controlling the fluid-pressure medium are open, and the pressure being exerted upon the pistons said pistons are forced outwardly, and the rods being pushed out-

wardly the supplemental steps will be lowered or projected into positions for use and held there so long as pressure is maintained upon the pistons, and the pivotal movement of the steps is compensated for in the piston-rods and cylinders by pivoting said cylinders at their inner ends, so that during the lowering operation of the step the said cylinders and parts connected thereto may swing through the proper arcs of circles.

It will thus be seen that I provide an exceedingly simple and highly efficient means for operating the supplemental car-steps for the purposes hereinbefore explained.

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

1. The combination with the supplemental step hinged to the lower end of a series of steps and provided with a spring for normally holding the said supplemental step closed, of a cylinder pivotally arranged beneath the steps, a piston working therein, a piston-rod connected to the piston, the outer end of said rod being bifurcated, the outer ends of the members being pivotally connected to the supplemental step, and means for supplying fluid-pressure to the cylinder, substantially as described.

2. The combination with the supplemental car-step hinged to the lower end of a series of ordinary steps and provided with a spring for normally holding the step folded against the bottom riser, said bottom riser having vertically-elongated slots, a cylinder pivotally arranged at its inner end beneath the steps, a piston working in said cylinder, a rod carried by the piston, the outer end of said rod being bifurcated, the outer ends of the members working through the vertically-elongated slots in the bottom riser and pivotally connected to the supplemental step, and means for supplying fluid-pressure to the cylinder, substantially as described.

ALAN PERCY GUNN.

Witnesses:
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