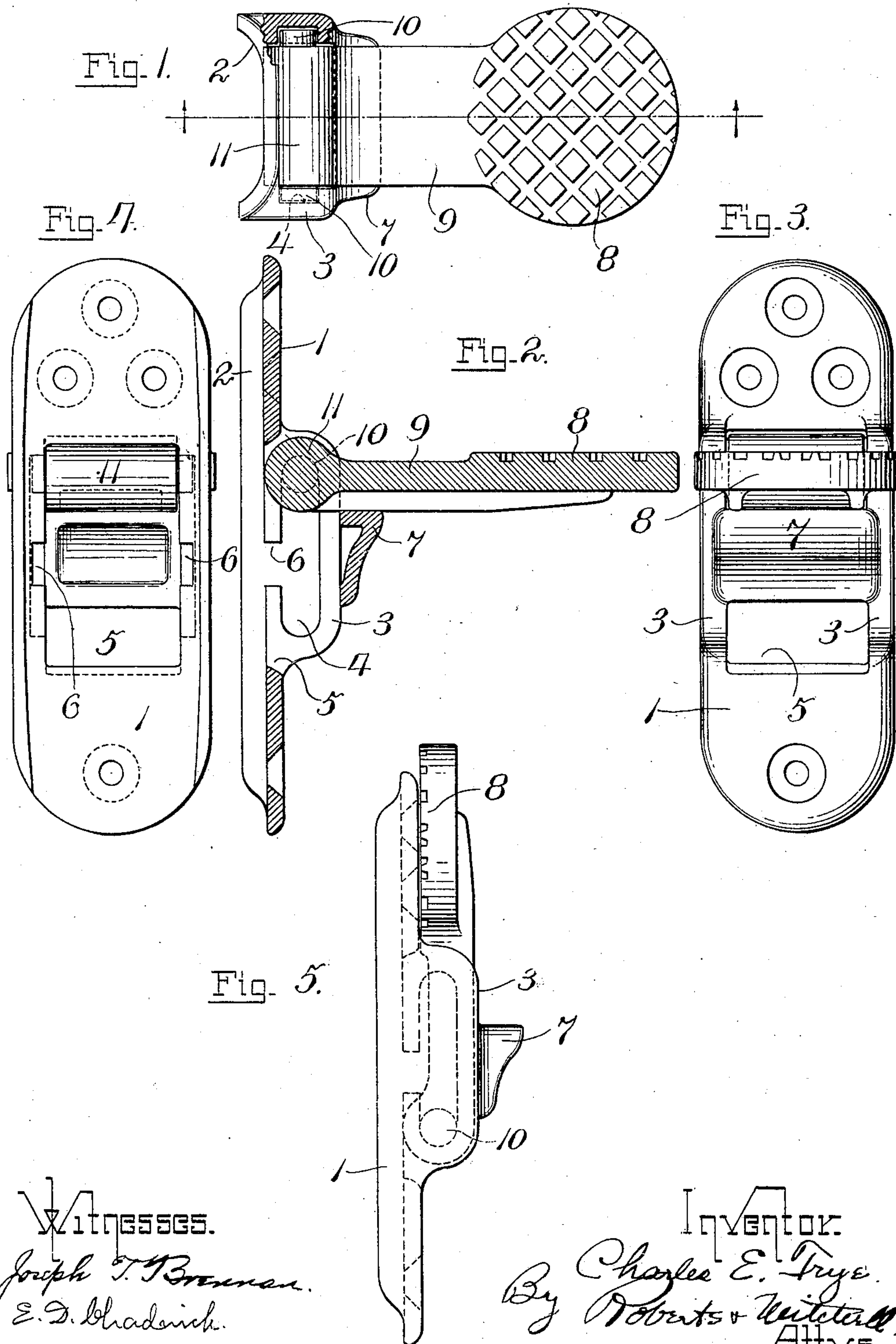


No. 865,375.

PATENTED SEPT. 10, 1907.

C. E. FRYE.  
COLLAPSIBLE STEP.

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# UNITED STATES PATENT OFFICE.

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## COLLAPSIBLE STEP.

No. 865,375.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed June 20, 1907. Serial No. 379,867.

*To all whom it may concern:*

Be it known that I, CHARLES E. FRYE, a citizen of the United States, and a resident of Laconia, in the county of Belknap and State of New Hampshire, have  
5 invented new and useful Improvements in Collapsible Steps, of which the following is a specification.

My invention relates to a collapsible or folding step, and its object is to provide such a step which shall be  
10 firm and rigid when in its operative or horizontal position and which may be readily folded into a compact space when not in use.

The step herein described is designed to be affixed to the corner of the wall of the trolley car.

It is customary to attach to the corner of a trolley car  
15 a short rigid step to be used by the conductor in mounting the roof of the car should any trouble occur with the trolley. The steps heretofore used for this purpose have been of the general shape shown in the accompanying drawings, but although used only occasionally  
20 they have been made rigid and immovable. As they project from the car at all times they frequently catch and tear the clothes of persons getting in or out of the car. It is therefore desirable to provide a folding or collapsible step which can be folded into small com-  
25 pass out of the way when it is not in use.

In the accompanying drawings which illustrate one embodiment of my collapsible step:—Figure 1 is a plan view of the step in horizontal or operative position; Fig. 2 is a vertical section on the broken line in Fig. 1  
30 looking in the direction of the arrows; Fig. 3 is a front elevation of the step in operative position; Fig. 4 is a rear elevation of the step in operative position; and Fig. 5 is a side elevation of the step in folded or collapsed position.

35 My improved step comprises two principal parts, namely, a bracket and the step proper. The bracket comprises plate 1 which is concaved on its rear side as shown at 2 to fit the corner of the car. On the face of plate 1 at either side thereof a vertical wing 3 projects.  
40 Each wing 3 is provided with an inwardly facing vertical slot 4 forming a guideway for the step trunnion, presently to be described. Between the wings 3, 3, the plate 1 is provided with an aperture 5. The rear walls of the slots 4, 4, are provided with notches or gate-  
45 ways 6 for use in assembling the device as hereinafter pointed out. Across the faces of the wings 3 and in front of the slots 4, 4, is a rigid step support 7. Plate 1 is provided with suitably arranged screw holes as shown, by which the device may be attached to its  
50 permanent support.

The step proper comprises the tread part 8, the shank part 9 and the pair of trunnions 10, 10. The base of the shank part 9 is preferably enlarged into cylindrical form as shown at 11, and bored out for the trunnion pin 10,  
55 which is driven therein. The trunnions 10, 10 are

adapted both to rotate and to slide within the slots 4. When the step is in its operative position, the trunnions 10, 10, abut against the tops of the slots 4, 4, which serve as stops, and the shank 9 of the step rests upon the step support 7. When it is desired to fold or collapse  
60 the step the outer end of the step is swung upward, whereupon the trunnions 10, 10, will rotate within the slots, and also slide downward toward the lower ends of the slots, the step finally assuming the upright position shown in Fig. 5 folded flat against the bracket, with the  
65 tread part of the step above the wings, 3, so that no part of the step projects beyond the faces of the wings. The shank part 9 substantially fills the space between the wings 3 and the pocket or recess formed between the wings 3 and behind the step support 7, so that the sur-  
70 face of the shank and the faces of the wings are substantially flush. The entire device folds much more compactly, and into much smaller space, by reason of the rotative and sliding connection between the base of the step to the bracket, than would be possible if the step  
75 were merely pivoted to the bracket upon a fixed journal.

In assembling the parts the shank of the step is passed through the aperture 5 of the plate 1 above the step support 7; the trunnion pin 10 is then driven into  
80 the bore of the base 11; and the trunnions are then passed through the gates or notches 6, 6, into the slots 4, 4. When the device is secured to its permanent support, such as a car wall, there is no danger of the trunnions escaping from the slots through gates 6, 6, be-  
85 cause the base 11 would strike against the car wall, thus preventing the trunnions from being dislodged from the slots.

I claim:—

1. A collapsible step, comprising a bracket having a  
90 vertical guideway, a step support in front of the guideway, and a step provided with means to engage said guideway slidably and rotatably, whereby the step may be supported in operative position by the step support, or swung into  
95 upright position behind the step support.

2. A collapsible step, comprising a bracket having a  
100 pair of vertical guideways, a step support in front of the guideways, and a step having a pair of projections in sliding and rotative engagement with said guideways, whereby the step may be held in operative position by the step support or may be swung into upright position behind the step support.

3. A collapsible step comprising a bracket having a  
105 pair of opposed vertical slots, a step support in front of said slots, and a step provided with a pair of trunnions having a sliding and rotative engagement with said slots, whereby the step may be held in operative position by the step support or may be swung into upright position behind the step support.

4. A collapsible step, comprising a plate, a pair of ver-  
110 tically arranged wings projecting therefrom, the wings each having an inwardly facing vertical slot, a step support on said wings in front of the slots, and a step provided with a pair of trunnions, having a sliding and rotative engagement with said slots whereby the step may be held in  
115



operative position by the step support or may be swung into upright position behind the step support.

5. A collapsible step, comprising a plate having an aperture therein, a pair of vertically arranged wings projecting from the plate at either side of the aperture, each wing having an inwardly facing vertical slot, a step support on the front of said wings forming behind it a recess or pocket, and a step provided with a pair of trunnions having a sliding and rotative engagement with said slots, whereby the step may be supported in operative position by the step support or may be swung into upright position and be held in said recess or pocket behind the step support.
6. A collapsible step, comprising a plate, a pair of vertically arranged wings projecting from the plate, each wing having an inwardly facing vertical slot, a step support on the front of said wings forming behind it a recess or pocket, and a step having a tread, a shank, and a pair of trunnions on the shank in sliding and rotative engagement with the slots, whereby the shank of the step may be supported in horizontal position by the step support, or may be swung into upright position and be held in said

recess or pocket behind the step support and between the wings.

7. A collapsible step, comprising a plate having an aperture therein, a pair of vertically arranged wings projecting from the plate at either side of the aperture, each wing having an inwardly facing vertical slot, a step support between the front faces of said wings forming behind it a recess or pocket, and a step having a tread, a shank, and a pair of trunnions at the end of the shank in sliding and rotative engagement with the slots, the parts being so formed that when the step is in upright position the shank of the step will be held in said recess or pocket and will substantially fill the space between the wings, and the tread of the step will be held above said wings, no part of said step projecting forward beyond the face of the wings.

Signed by me at Laconia, New Hampshire, this seventeenth day of June, 1907.

CHARLES E. FRYE.

Witnesses:

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