U. E. CROFUT, JR.

EXTENSION CAR STEP.

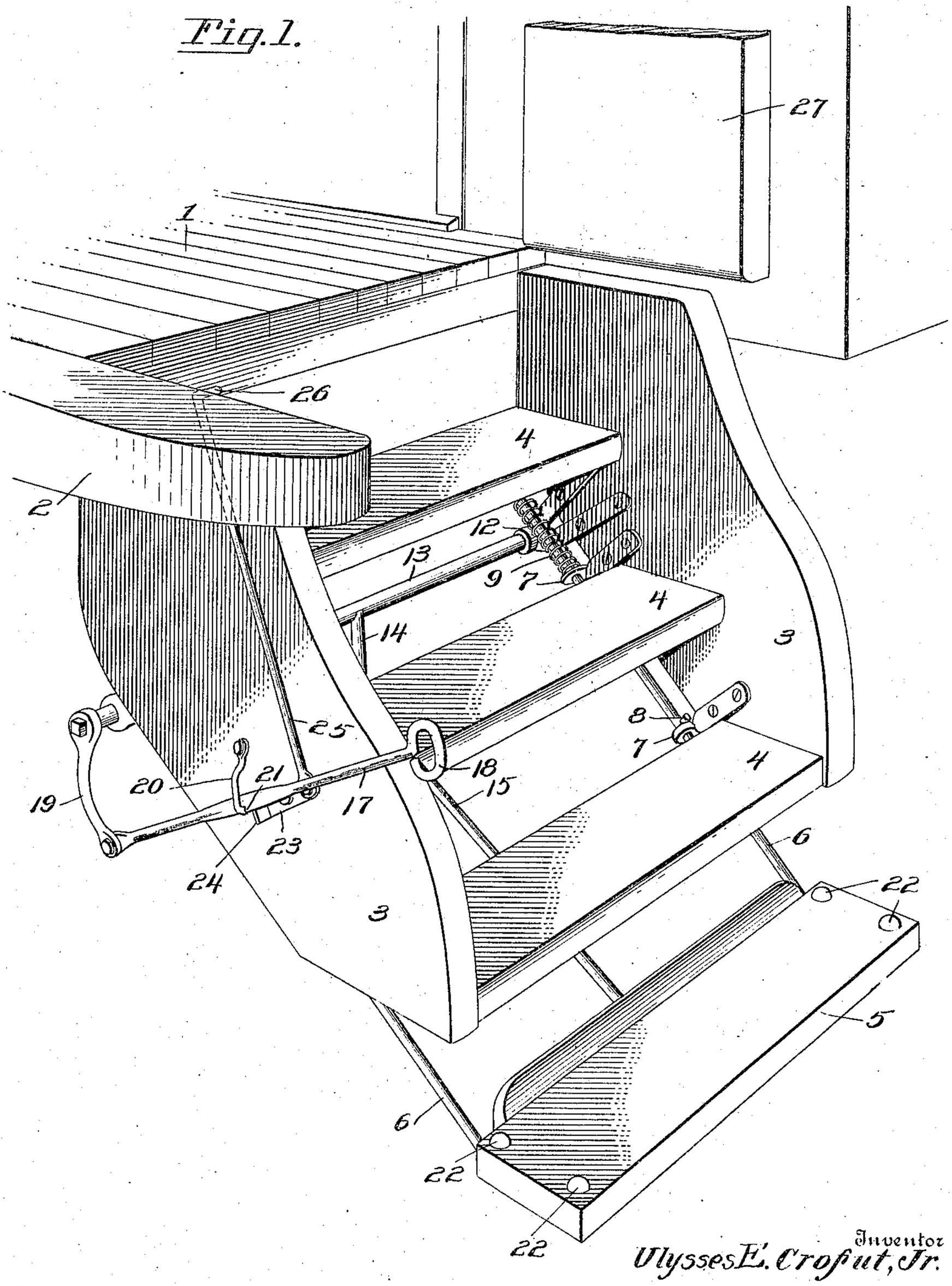
APPLICATION FILED NOV. 4, 1907.

924,537.

Patented June 8, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

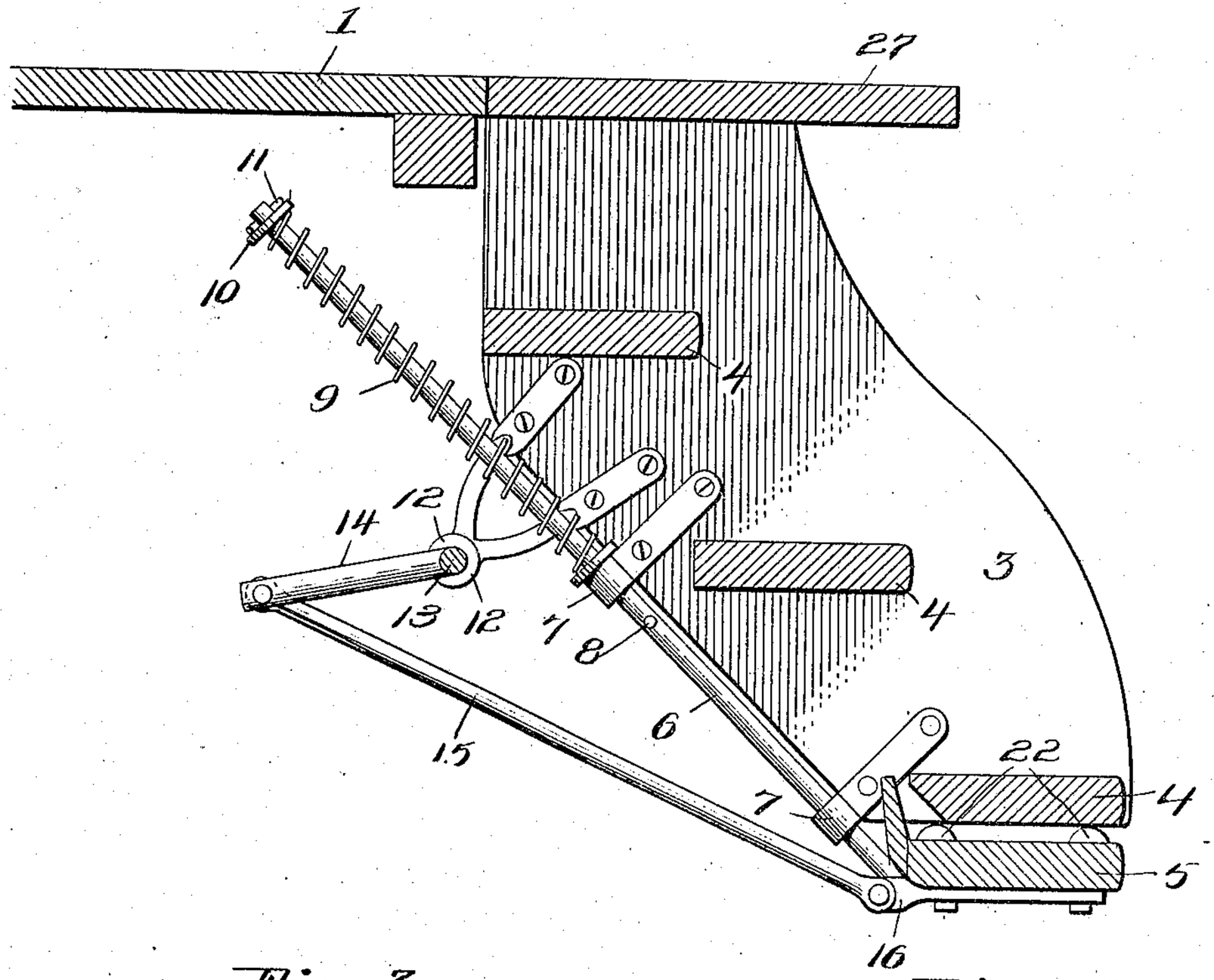


Fig. 3.

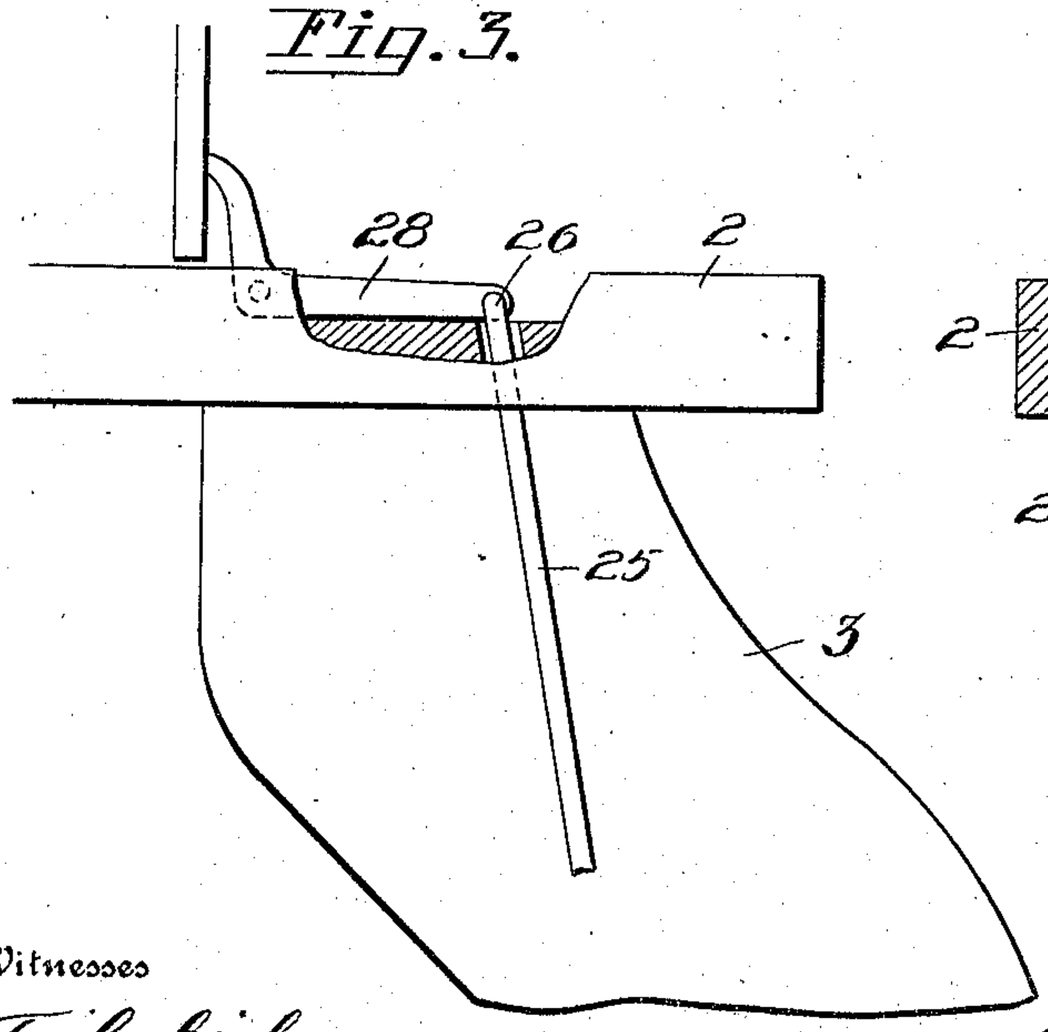
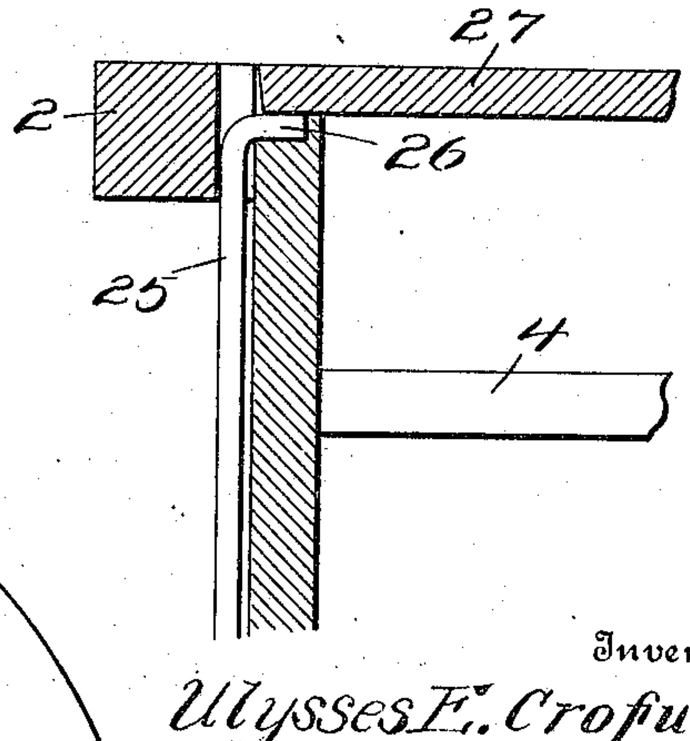


Fig. 4.



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UNITED STATES PATENT OFFICE.

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EXTENSION CAR-STEP.

No. 924,537. Specification of Letters Patent. Patented June 8, 1909.

Application filed November 4, 1907. Serial No. 400,629.

To all whom it may concern:

Be it known that I, ULYSSES E. CROFUT, Jr., a citizen of the United States of America, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented new and useful Improvements in Extension Car-Steps, of which the following is a specification.

This invention relates to extension car steps, the object of the invention being to provide an extra step carried by the car and adapted to slide into position for use and also to slide back out of the way when not needed, in connection with means for producing the back and forth sliding movements of the step including mechanism operating, when tripped, to automatically retract the step or restore the same to the position where it is entirely out of the way.

A further object of the invention is to provide means for automatically tripping the step in case the porter, brakeman or other attendant has neglected to trip the step before the starting of the train.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts as hereinafter fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a perspective view of the steps of a car, showing the extension step of this invention applied thereto. Fig. 2 is a vertical transverse section through the same. Fig. 3 is a detail view showing the tripping mechanism adapted to be sprung by the ordinary hinged vestibule door. Fig. 4 is a detail cross section through car steps taken at right angles to Fig. 3.

In the drawings, 1 designates the platform of a car, 2 one of the car sills, 3 the frame pieces of the usual steps, and 4 the ordinary fixed car steps supported by the frame pieces 3.

The extension step of this invention is indicated at 5 being of approximately the same size as each of the steps 4 and mounted on and fastened to the lower ends of sliding supports 6 which extend inward and upward at an angle corresponding with the pitch of the steps 4 and beneath said steps. The sliding supports 6 are preferably in the form of rods and they are mounted to slide through guides 7 secured to the frame pieces 3. Any number of these guides may be employed for each sliding support and the supports are provided with stop shoulders 8 which, when the step 5 is lowered as shown in Fig. 1, come in contact with and rest against oppositely arranged guides 7 thereby forming an efficient support for the step 5, removing the strain from the other mechanism hereinafter described.

Above the uppermost guides 7, each of the sliding supports 6 has a step retracting spring 9 coiled around it and interposed between such upper guide and a shoulder at or near the upper extremity of the sliding support which last named shoulder may conveniently consist of a washer 10 above which a cotter pin 11 or its equivalent is inserted through a hole in the support, serving to retain the washer and spring in position while permitting a broken spring to be easily removed and replaced by a new one.

Mounted in bearing hangers 12 secured to the frame pieces 3 is a shaft 13 provided intermediate its ends with a crank arm to which is pivotally connected one end of a rod or link 15 the opposite or lower end of which is pivotally connected to a foot piece 16 secured to the step 5 and preferably to the under side thereof, as shown in Fig. 2. When the shaft 13 is turned in the proper direction, the arm 14 thereof pushes downward on the rod or link 15 and slides the step 5 downward from the position shown in Fig. 2 to the position shown in Fig. 1.

The shaft 13 is operated by means of an operating latch bar 17 provided at one end with a suitable handle 18 and connected pivotally at its opposite end to a crank arm 19 fast on one end of the shaft 13 as clearly shown in Fig. 1. The latch bar 17 passes through a combined stirrup and keeper 20 at one side of the car steps and is provided with a notch 21 which engages with said keeper 20 to hold the shaft 13 from rotating when the step 5 is lowered as shown in Fig. 1. The parts are set in this position by pulling outward on the handle 18 and engaging the notch 21 with the keeper 20. By slightly raising the handle 18, the latch bar 17 is moved out of engagement with the keeper 20, whereupon the springs 9 act in an upward direction on the sliding supports 6 thereby drawing the extension step 5 upward against the bottom of the lowermost fixed step 4, the impact of the step 5 being relieved

by providing said step on its upper side with bumpers 22 which may consist of buttons or knobs of rubber or similar material.

The automatic tripping mechanism for the extension step embodies a pivoted trip 23 mounted on one of the frame pieces 3 and having at one end a lip 24 which works beneath the latch bar 17, while the other end or arm of the trip is pivotally connected to the lower extremity of a trip rod 25, the latter extending upward between the frame piece 3 and car sill 2 and having its upper extremity bent at an angle as shown at 26. The extremity 26 is located in the path of movement of the usual hinged trap door 27 which forms an extension of the car platform 1. When said trap door 27 is allowed to drop it strikes against the extremity 26 of the trip rod forcing said rod downward, rocking the trip 23 and lifting the latch bar which is thereby released from the keeper 20. The springs 9 then act to retract or uplift the extension step.

Where the trap door 27 is not employed and the ordinary hinged vestibule doors are used on the car an auxiliary trip lever 28 is fulcrumed on the sill 2 one arm of the lever being connected with the bent extremity 26 of the trip rod while the other end or arm of said lever is arranged in a position to be struck by one of the doors as shown in Fig. 3, said lever thus serving to depress the trip rod 25 with the result above set forth.

I claim:—

1. The combination with an extension car step, of sliding supports therefor, a shaft connected with the step to slide the same, a crank arm on said shaft, and an operating latch bar attached to and movable with said crank arm.

2. The combination with an extension car step, of sliding supports therefor, a shaft connected with the step to slide the same, a latch bar operatively connected with said shaft, and a trip for releasing said latch bar.

3. The combination with an extension car step, of sliding supports therefor, a shaft connected with the step to slide the same, a latch bar for turning and holding said shaft, and a door operated trip for releasing the latch bar.

In testimony whereof I affix my signature in presence of two witnesses.

ULYSSES E. CROFUT, Jr.

Witnesses:
EDWARD JACOBS,
C. M. DE LONG.