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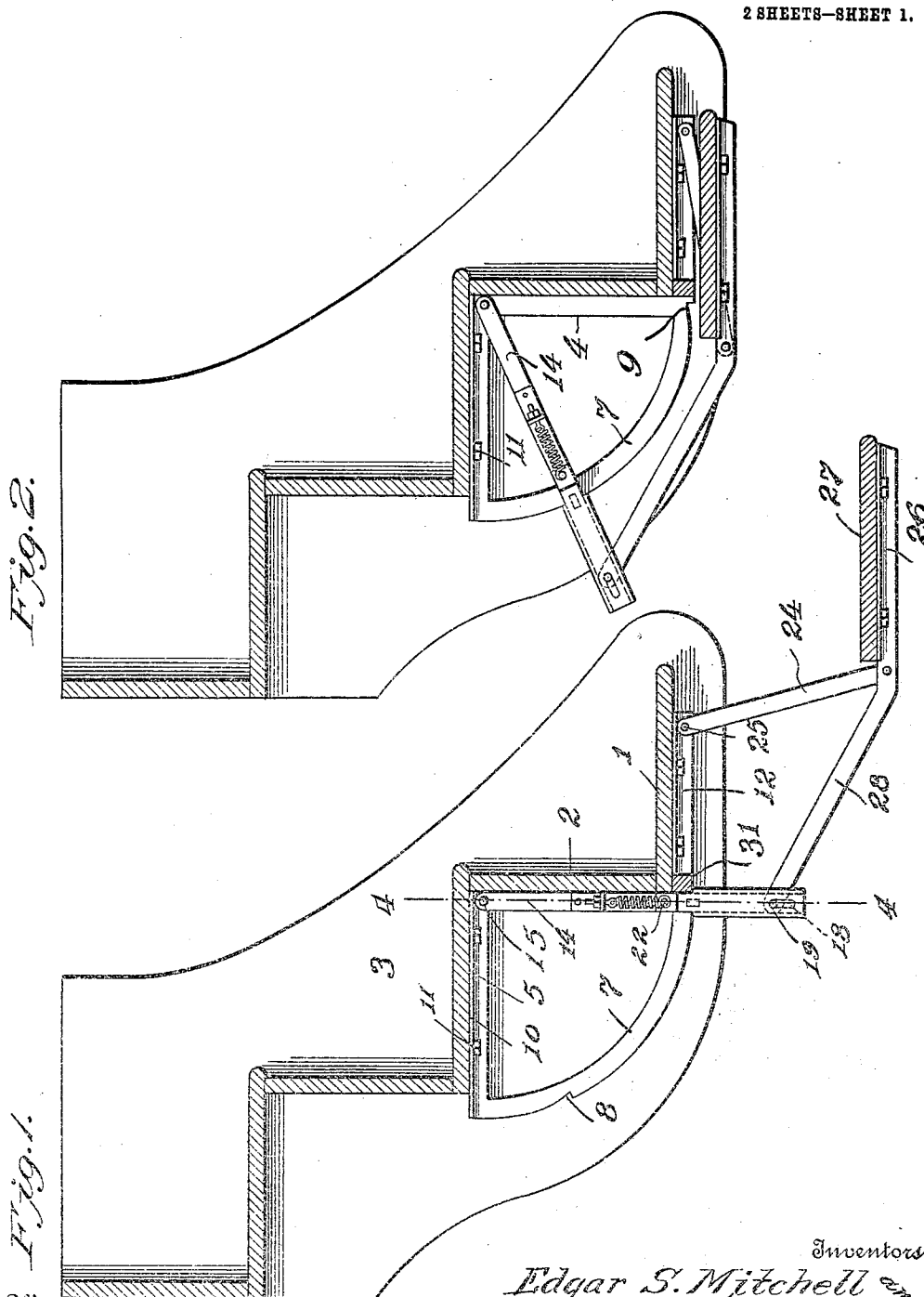
EXTENSION CAR STEP.

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955,658.

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2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

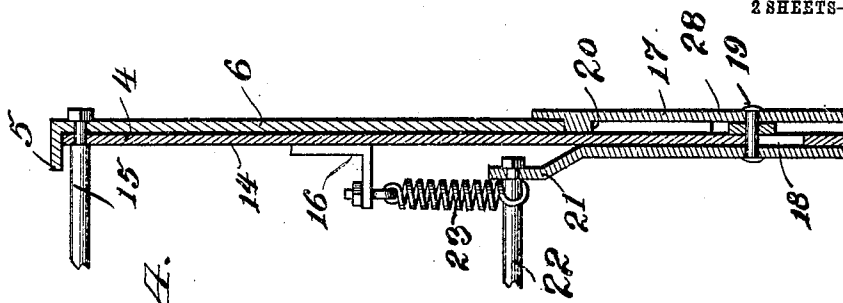


Fig. 4.

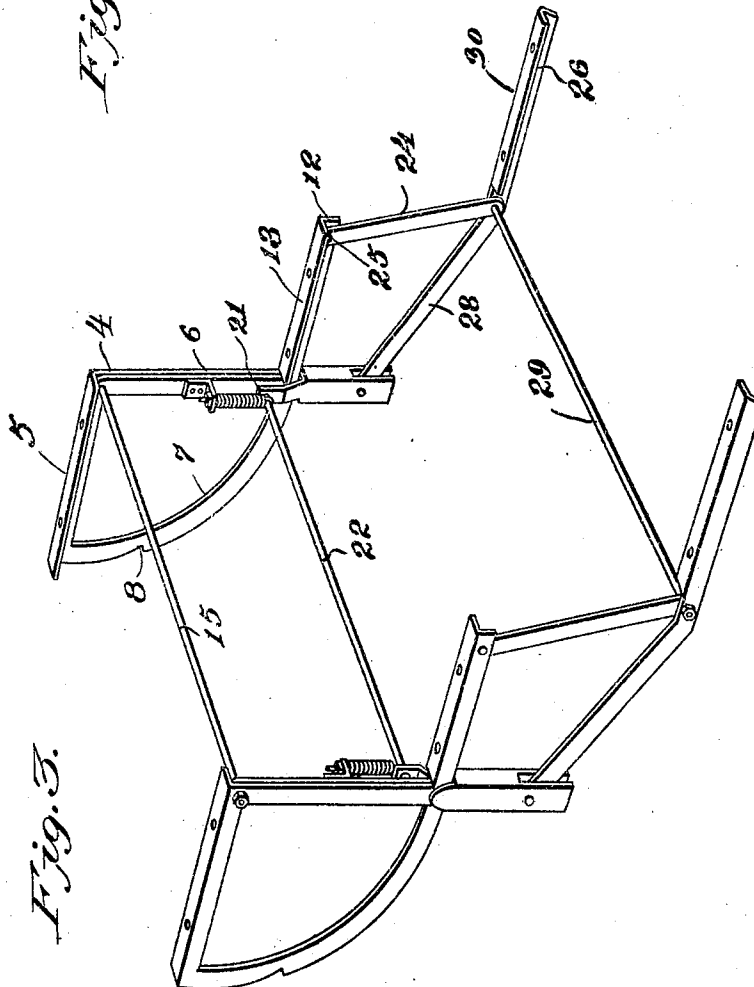


Fig. 3.

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UNITED STATES PATENT OFFICE.

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EXTENSION CAR-STEP.

955,658.

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To all whom it may concern:

Be it known that we, EDGAR S. MITCHELL and GEORGE A. CAMPBELL, citizens of the United States, residing at Homer, in the 5 parish of Claiborne and State of Louisiana, have invented new and useful Improvements in Extension Car-Steps, of which the following is a specification.

This invention relates to improvements in 10 extension steps for street and railway cars and consists in the construction, combination and arrangement of devices hereinafter described and claimed.

In the accompanying drawings:—Figure 15 1 is a vertical sectional view of car steps provided with an extension step and operating and supporting means therefor constructed in accordance with our invention, the extension step being in lowered extended 20 position. Fig. 2 is a similar view of the same showing the extension step in raised withdrawn position. Fig. 3 is a detail perspective view of the supporting frame and hanging devices of our improved extension 25 step. Fig. 4 is a detail vertical sectional view of the same on the plane indicated by the line 4—4 of Fig. 1.

The usual permanently fixed car steps are shown in Figs. 1 and 2 of the drawings, 30 the treads being indicated at 1, the risers at 2 and the hangers at 3. In accordance with our invention, we provide a pair of brackets 4 which lie in the angle between the riser of the first step and the tread of the second step, each of the said brackets 35 comprising a horizontal arm 5, a vertical arm 6 and a segment 7. The segment is provided at suitable points with notches 8, 9. The horizontal arm 5 of each bracket 40 has an angle flange 10 which bears under the tread of the second step and is secured thereto as by means of screws or bolts 11. Each bracket is also provided with a forwardly extending lower horizontal arm 12 45 having a flange web or angle web 13 to bear under and which is secured to the tread of the first step. A pair of hangers 14 operate on the opposing inner sides of the brackets and at their upper ends are pivotally connected to the brackets, a bolt rod 15 being 50 here shown as forming the pivots for the said hangers and connecting the said brackets together. Hence the said hangers are movable angularly and may be caused to

assume either a vertical position as shown 55 in Figs. 1, 3 and 4 or an inclined position as shown in Fig. 2. Each hanger 14 is provided on its inner side at a suitable point with a bracket 16. The lower portions of the said hangers are disposed in sleeves 17 60 which are movable vertically on said hangers, the latter being provided with slots 18 and the said sleeves being provided with cross bolts or pins 19 which operate in the said slots. On the inner side of each sleeve 65 near the upper end thereof is a tooth 20 which may be engaged with the notches 8, 9 of the segments of the brackets 4.

Each sleeve is provided on its inner side at its upper end with an upwardly extend- 70 ing arm 21. The said arms are connected together by a bolt rod 22. Coiled retractile springs 23 have their lower ends connected to the said bolt rod and their upper ends connected to the brackets 16, said springs 75 acting to draw the said sleeves upwardly to engage the teeth thereof with the notches of the brackets. A pair of hanger links 24 are pivotally connected at their upper ends as at 25 to the arms 12 of the brackets near 80 the front ends of said arms. A pair of supporting arms 26 for the extension step 27 are pivotally connected to the lower ends of the hanger links 24 and are provided with upwardly bent inwardly extending 85 angle portions 28 which extend through slots in the sleeves 17 and the inner ends of which are pivotally connected to the said sleeves by the pivots 19. Pivotal connection between the said supporting arms 26 and 90 the hanger links 24 is effected by a bolt rod 29. The supporting arms 26 are provided with angle flanges 30 which bear under and are bolted or otherwise secured to the extension step. On the under side of the tread 95 of the bottom step 1 at the inner edge thereof are blocks 31.

The operation of our invention is as follows:—The hangers 14 together with the hanger links 24 and the arms 26 serve to 10 suspend and support the extension step and enable the latter to be withdrawn and folded up under the bottom step or lowered and extended outwardly therefrom at will. When the extension step is lowered as in 10 Fig. 1, the hangers 14 are vertical and the teeth 20 of the sleeves are in engagement with the lower notches 9 of the sectors or

segments of the brackets 4. The springs 23 by their tension on the said sleeves keep the teeth thereof in engagement with the said notches and cause the pivot pins 19 which form the pivotal connection between the supporting arms 26 and the said hangers 14 to remain in the upper portions of the slots 18. In order to disengage the teeth of the sleeves from the notches 9, it is only necessary to draw upwardly on the outer portion of the extension step thereby causing the arms 26 to draw the sleeves downwardly against the tension of the springs 23 sufficiently to clear the teeth 20 from said notches 9. By pressing inwardly on the said extension step the latter can be then folded upwardly under the bottom step as shown in Fig. 2, and when the step reaches such folded position the springs 23 act on the sleeves to engage the teeth of the latter with the upper notches 8 of the bracket sectors 7 so as to lock the hangers 14 in the inclined position required to support and maintain the extension step in elevated folded position. The blocks 31 form stops which limit inward movement of the extension step and facilitate the engagement of the pivot 20 with the notches 8. By first pressing upwardly under the outer edge of the extension step, the teeth of the sleeves can be disengaged from the said upper notches 8, against the tension of the spring 23, as will be understood to permit the extension step to be lowered to the operative position shown in Fig. 1.

What is claimed is:—

1. The combination of brackets to lie in the angles between the treads and risers of fixed or permanent car steps and having forwardly extending arms, hangers having their upper ends pivotally connected to said brackets, hanger links having their upper ends pivotally connected to said forwardly extending arms of said bracket, means to lock said hangers to the said brackets in vertical and inclined position and supporting arms for the extension step, said supporting arms being pivotally connected to and carried by said hangers and said hanger links.

2. In combination with locking sectors pivotally mounted hangers, pivotally mounted hanger links, sleeves movable on and carried by said hangers and having means to coact with the locking sectors to secure the hangers to said sectors, springs normally engaging the locking means of the sleeves and sectors and supporting arms for an extension step, said supporting arms being pivotally connected to the lower ends of the hanger links and having their inner ends pivotally connected to the said sleeves.

In testimony whereof we affix our signatures in presence of two witnesses.

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Witnesses:

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