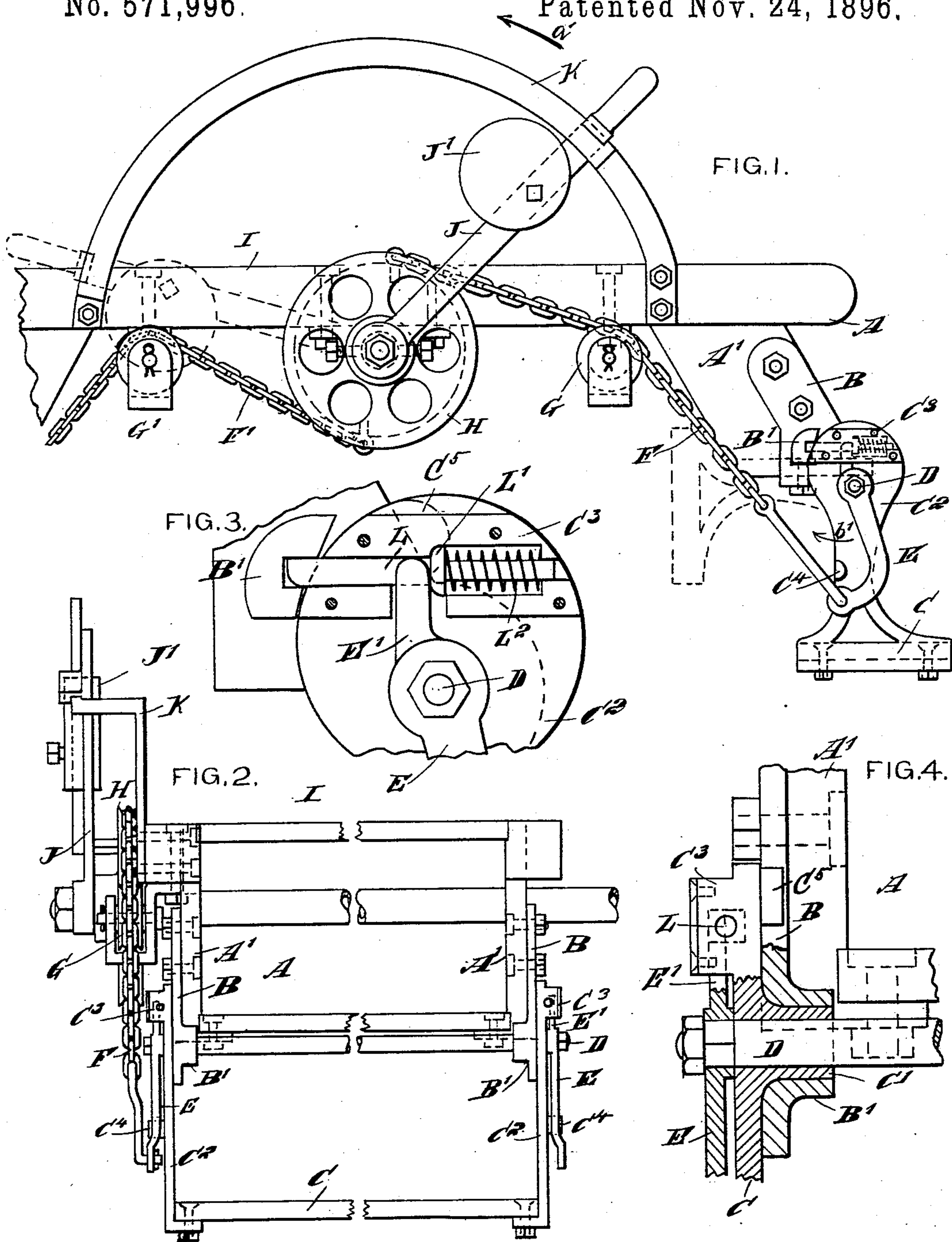


(No Model.)

S. J. EVANS.
EXTENSION STEP.

No. 571,996.

Patented Nov. 24, 1896.



WITNESSES:

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SAMUEL J. EVANS, OF ELKHORN, WEST VIRGINIA.

EXTENSION-STEP.

SPECIFICATION forming part of Letters Patent No. 571,996, dated November 24, 1896.

Application filed September 26, 1896. Serial No. 607,016. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL J. EVANS, of Elkhorn, in the county of McDowell and State of West Virginia, have invented a new and Improved Extension-Step, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved extension-step for railway-cars which is simple and durable in construction, very effective in operation, and arranged to permit of conveniently folding it under the platform-step when not in use.

The invention consists principally of an arm mounted to swing and adapted to successively engage the locking-bolt for locking the pivoted step to the fixed car-platform step and to engage the pivoted step and swing the latter upward and inward to fold said pivoted step under the fixed step.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement. Fig. 2 is a front elevation of the same. Fig. 3 is an enlarged side elevation of the locking device with the cover removed, and Fig. 4 is a front elevation of the same with parts in section.

On the outside of the risers A' of the fixed car-platform step A are secured the hangers B by bolts or other suitable means, and the said hangers are formed at their lower ends with bearings B' for hubs C', formed on the brackets C², carrying the extension car-step C, as is plainly illustrated in the drawings. In the hub C' is mounted to turn loosely a shaft D, carrying at each outer end an arm E, the lower portion of which is curved, as plainly shown in Fig. 1, and the free end of one of the arms is connected with a chain F, extending upwardly and transversely to pass over an idler G, journaled in suitable brackets attached to the platform I of the car.

The inner end of the chain F is attached to the periphery of a pulley or drum H, journaled in suitable bearings on the under side of the platform I, and at or near the middle

thereof and on the shaft of the said pulley is secured a hand-lever J, carrying a weight J' and engaging a segment K, secured to the said platform I. The chain F (shown in Fig. 1) connects with the pulley or drum H at the top thereof, and a like chain F' connects with the said pulley at the bottom thereof and extends over an idler G' to an arm E for manipulating the extension-step on the other side of the car.

The shaft on which the drum H is fastened, Fig. 2, extends to the other end of the car, on the end of which a similar arrangement is attached, so that all steps being connected together can be operated from either end of the car at one and the same time. The drum H is journaled in any convenient position under the platform I. It may be necessary in some cases to fix it directly above the step on one side on account of the obstructions in the center of the car.

The arm E on one side of the car and connected with the chain F is provided with an extension E', adapted to engage a cam L', held on a transversely-extending bolt L, fitted to slide in suitable bearings formed in a casing C³, attached to the fulcrum end of the bracket C². A spring L² presses on the said bolt L to hold the same normally in an outermost position, as indicated in Fig. 3.

The inner end of the bolt L is adapted to engage a keeper B', secured or formed on the hanger B, so that when the said bolt engages the said keeper it locks the bracket C² and consequently the extension-step C to the hanger B. The lower curved end of each of the arms E is adapted to engage a lug C⁴ on the corresponding bracket C², the said arm extending normally, however, a suitable distance away from the said lug C⁴, as shown in Fig. 1, and at the time the extension car-step is in a lowermost position. On the bracket C² is also formed a lug C⁵, adapted to engage the hanger B, at the front edge thereof, to hold the extension-step in a proper position for the bolt to lock.

When the several parts are in the position illustrated in Fig. 1, then the extension car-step C is in an active position and locked therein by the bolt L, engaging the keeper B'. The extension-step can now be used in connection with the car-platform step A, and

when it is desired to move the said extension-step into an inactive or folded position then the operator swings the lever J over in the direction of the arrow a' to the position indicated by dotted lines in Fig. 1. In moving the lever into this position the pulley or drum II is turned to wind up the chains F F', so that a pull is exerted on each of the arms E on opposite sides of the car. A swinging motion is thus given to the arm E in the direction of the arrow b' , so that the extension E' of the said arm pushes the bolt L outward and out of engagement with the keeper B', so as to unlock the extension-step. A further movement of the arm E in the direction of the arrow b' brings the said arm in contact with the lug C⁴, and consequently a further movement of the said arm causes the brackets C² to swing upward and inward to the position shown in dotted lines in Fig. 1. Thus the arm E first unlocks the extension-step from the car-platform step and then swings the extension-step into a folded position, as above explained.

When it is desired to make use of the folded extension-step, then the operator swings the lever J in the inverse direction of the arrow a' back to the position shown in Fig. 1, so that the extension-step by its own weight swings back into a vertical position and a spring L² shoots out the bolt L to engage the latter again with the keeper B'. The spring L² by shooting out the bolt L causes the cam L' of the latter to push the arm E back into the position shown in Fig. 1, that is, bring the curved end of the arm E a suitable distance away from the lug C⁴. When the lever J is again moved over in the direction of the arrow a' , then the arm E successively moves the bolt L and the extension-step, as previously explained.

When the step is lowered in position, as soon as it is vertical and the hangers B engage lugs C⁵, formed on the brackets C², it is held in a vertical position, whereupon the bolt L shoots out and locks it there.

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

1. An extension-step, provided with an arm mounted to swing and adapted to successively engage the locking-bolt for locking the pivoted step to the fixed car-platform step, and to engage the pivoted step and swing the latter upward and inward, substantially as shown and described.

2. An extension-step, pivoted to the fixed car-platform step, and carrying a bolt adapted to engage a keeper on the said fixed step, and an arm capable of swinging and under the control of the operator, the arm being adapted to engage the said bolt and move the latter out of engagement with the keeper, to unlock the said step, substantially as shown and described.

3. An extension-step, provided with a pivoted step having lugs on the step-brackets, and arms mounted to swing independently of the said step and adapted to engage the said lugs to impart a swinging motion to the pivoted step, substantially as shown and described.

4. An extension-step, provided with a pivoted step having lugs on the step-brackets, arms mounted to swing independently of the said step and adapted to engage the said lugs to impart a swinging motion to the pivoted step, and means, substantially as described, for imparting a swinging motion to the said arms, as set forth.

5. An extension-step provided with hangers secured to the car-platform step, brackets mounted to swing on the said hangers and carrying a step, a shaft mounted to turn in the pivot ends of the said brackets, an arm secured to the said shaft and adapted to engage a lug on one of the said brackets, means for imparting motion to the said arm, a bolt held on the said bracket and engaged by an extension of the said arm, and a keeper fixed on the said fixed bracket and engaged by the said bolt, substantially as shown and described.

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Witnesses:

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GEORGE COOPER.