

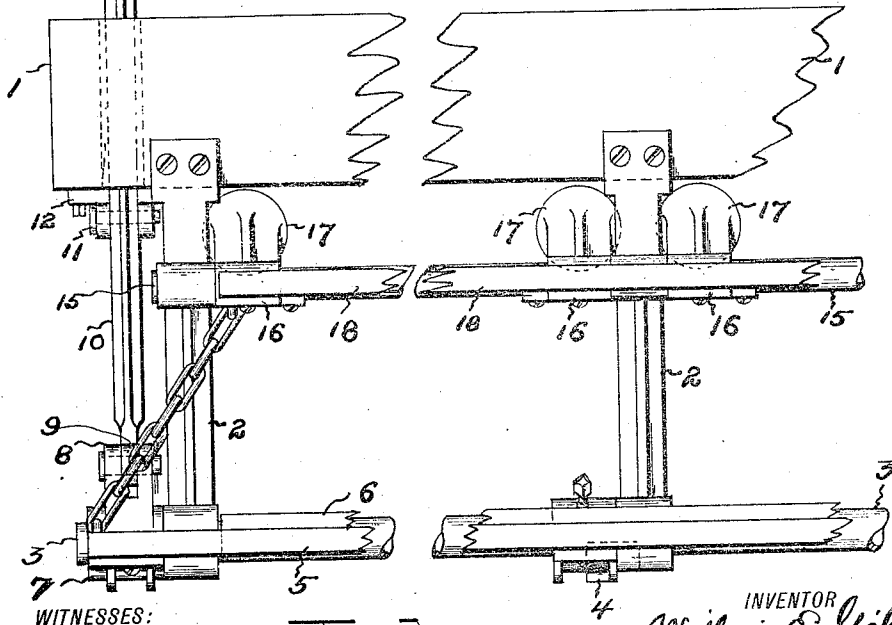
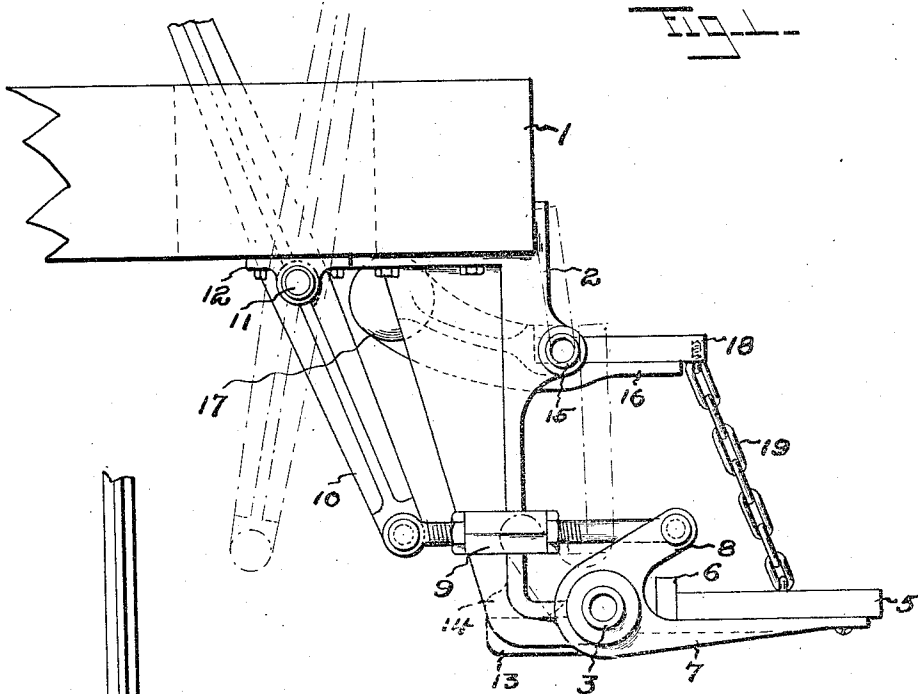
W. E. GILES.
CAR STEPS.

APPLICATION FILED MAY 18, 1912.

Patented Feb. 11, 1913.

2 SHEETS-SHEET 1.

1,052,476.



WITNESSES:

Florence H. Monk.
Nathan S. Hoyle

INVENTOR
William E. Giles
BY *George C. Hoyle*
ATTORNEY

W. E. GILES.

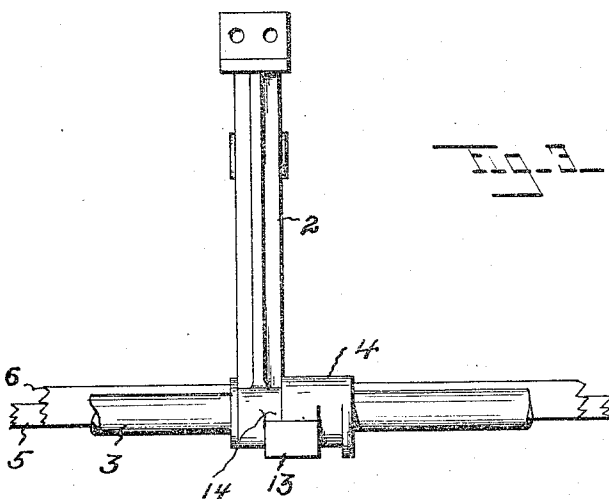
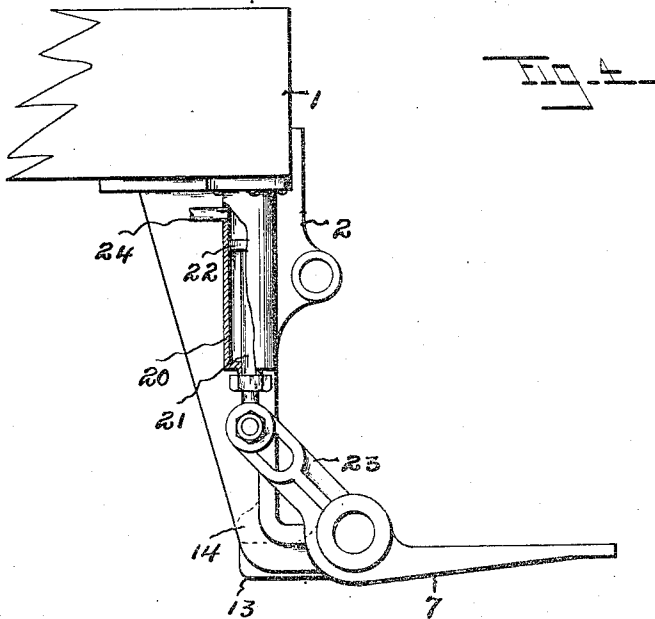
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UNITED STATES PATENT OFFICE.

WILLIAM E. GILES, OF NEW HAVEN, CONNECTICUT.

CAR-STEP.

1,052,476.

Specification of Letters Patent.

Patented Feb. 11, 1913.

Application filed May 18, 1912. Serial No. 698,119.

To all whom it may concern:

Be it known that I, WILLIAM E. GILES, a subject of George V, King of Great Britain and Ireland, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Car-Steps, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to a new and improved car step, having for its object, among other things, to construct a device of this character, with two or more steps that will open or close synchronously, and capable of operation by manual or other means; a further object being to design the device that it may have great strength and rigidity and of few parts that may be economically constructed, readily assembled, and the device as a unit applied to any car.

To these, and other ends, my invention consists in the car step, having certain details of construction and combinations of parts, as will be hereinafter described and more particularly pointed out in the claims.

Referring to the drawings, in which like numerals of reference designate like parts in the several figures; Figure 1 is an end view of my improved device applied to a car body; Fig. 2 is a fragmentary side elevation thereof; Fig. 3 is an elevation of one of the hangers, looking from the left of Fig. 1, with some of the parts adjacent thereto; and Fig. 4 is an end elevation of a modified form of my invention.

Referring to the drawings, the car body is designated by the numeral 1, to which is secured a plurality of hangers 2, within which is rotatably mounted the shaft 3, preferably constructed of tubing. Upon this shaft are a plurality of dogs 4, to which is attached the lower step 5, having a toe board 6 upon the inner side thereof.

Upon the shaft 3, adjacent to the end hanger, is a dog 7 constructed in substantially the same manner as the dogs 4, but having a crank arm 8 thereon, to which is secured one end of a turn buckle connection 9, the other end of which is secured to a hand lever 10. This lever is pivotally mounted upon a stud 11 in the bracket 12, secured to the car body 1. The turn buckle connection 9 is constructed in the usual manner, the distance between the lever and crank arm being adjustable through the central nut forming part thereof.

Upon the inner ends of the dogs 4 and 7 is a lug 13 that contacts with a lug 14 integral with the hangers 2 and thereby limits the movement of said dogs so as to hold the lower step 5 in a horizontal position and take the weight and pressure placed thereon. Movement of the lever 10 upon its pivot mounting from the position shown in full lines to that shown in broken lines, in Fig. 1, rotates the shaft 3, and the dogs connected therewith through the turn buckle connection 9, and lifts the lower step 5 from its horizontal position to a substantially vertical position that is shown by broken lines in Fig. 1.

I have not shown the construction of the upper end of the lever 10, as it constitutes no part of my invention, any form or type of lever being adapted for this purpose, which may be locked by any preferred form of locking means so as to prevent accidental or improper manipulation thereof. A lever may be located, however, at each end of the car, if desired, so that the person operating the car at either end may raise or lower the steps.

Rotatably mounted in the hanger 2, between the car body 1 and the shaft 3, is a shaft 15, also preferably made of tubing, upon which is secured a plurality of dogs 16, having a counter-weight 17 upon their inner ends, and to the outer ends of which is attached the upper step 18, connected with the lower step by the chains 19. When the upper step 18 is in its horizontal position, shown in Fig. 1, the counter-weight 17 contacts with the underside of the body 1, so that the weight or pressure upon said upper step is taken by said body member. The movement of the lower step 5 from its vertical to its horizontal position imparts a like movement of the upper step 18 through the chains 19, so that whenever the lower step 5 is in its horizontal position, the step 18 is automatically moved into a similar and parallel position. As the lower step shifts from its horizontal to its vertical position the upper step 18 is also moved into a vertical position through the action of the counter-weight 17, this vertical position being shown by broken lines in Fig. 1.

The device herein illustrated and described is manually operated, but as many cars are provided with air brakes, and hence have an air pressure system connected therewith, this may be utilized for the purpose of

operating my improved step. To take advantage of this system, I provide a cylinder 20, that is connected to the body 1, and within which is movable the piston head 22 that is connected with the arm 23, integral with the dog 7 through a piston rod 21. Air is admitted into the piston through a pipe 24 in a well known manner. The operation of the shaft 3 and the other parts of my improved device will be exactly the same through air pressure means just described as if the said shaft were operated manually.

The construction of the air cylinder and the means for admitting and taking air therefrom is no part of my invention, and therefore is not shown or described in detail.

Either steam or water may be utilized as well as air to operate the mechanism by simply substituting well known devices for the air cylinder herein shown.

There are other minor changes and alterations that can be made within my invention, aside from those herein suggested, and I would therefore have it understood, that I do not limit myself to the exact construction herein shown and described, but claim all that falls fairly within the spirit and scope of my invention.

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

1. In a device of the character described, the combination with a plurality of hangers, designed for attachment to a car body; of parallel shafts mounted in said hangers; dogs upon one of said shafts that are limited in their movement in one direction by contact with said hangers; weighted dogs upon the other shaft; a step secured to the dogs upon each of said shafts; a connection between said steps; and adjustable means, controlled from the body of the car, for operating one of said shafts.

2. In a device of the character described, the combination with a plurality of hangers, designed for attachment to a car body; of a shaft rotatably mounted therein adjacent to its lower end; a second shaft also rotatably mounted therein at a point between said shaft and said car body; a plurality of dogs connected with said lower shaft, having means thereon that contact said hangers and limit the movement thereof in one direction; a step connecting all of said dogs; means connected with said shaft and controlled from the body of the car for imparting a rotary movement to said shaft; a

plurality of dogs connected with said second shaft and having a counterweight upon one end thereof; a step attached to said last mentioned dogs; and a connection between each of said steps.

3. In a device of the character described, the combination with a plurality of hangers, designed for attachment to a car body, said hangers having a laterally projecting arm at their lower end; a shaft rotatably mounted in said arms; a plurality of dogs connected with said shafts, at least one of said dogs having a crank arm connected therewith; means connected with said dogs for limiting their movement in one direction; a step attached to each of said dogs; means, connected with said crank arm, for rotating said shaft from the body of said car; a second shaft rotatably mounted in said hangers between said first mentioned shaft and said car body; a plurality of dogs connected with said second shaft, having counterweights upon one end thereof; a step secured to said last mentioned dogs; and a connection between each of said steps.

4. In a device of the character described, the combination with a plurality of hangers designed for attachment to a car body; of companion shafts mounted in said hangers; adjustable means for imparting a rotary movement to one of said shafts from said car body; weighted means for imparting a rotary movement to the other shaft in one direction; a plurality of dogs secured to each of said shafts; and a step secured to the dogs upon each of said shafts.

5. In a device of the character described, the combination with hangers 2; of the shafts 3 and 15 rotatably mounted therein; dogs 4 fixed to the shaft 3, having a lug 13 thereon that contacts with a portion of said hanger to limit their movement in one direction; a dog 7 upon said shaft 3 provided with a crank arm 8; a step 5 secured to said dogs 4 and 7; a lever 10 pivotally connected with the car body; an adjustable connection between said lever and crank arms; dogs 16, having counter-weights 17 thereon fixed to the shaft 15; step 18 secured to said dogs 16; and a connection 19 between said steps 5 and 18; all constructed and operating substantially as described.

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

WILLIAM E. GILES.

Witnesses:

GEORGE E. HALL,
WALLACE S. MOYLE.