J. S. BLAKE.

FOLDABLE CAR STEP.

APPLICATION FILED MAR. 13, 1911.

996,201.

Patented June 27, 1911.

2 SHEETS—SHEET 1.

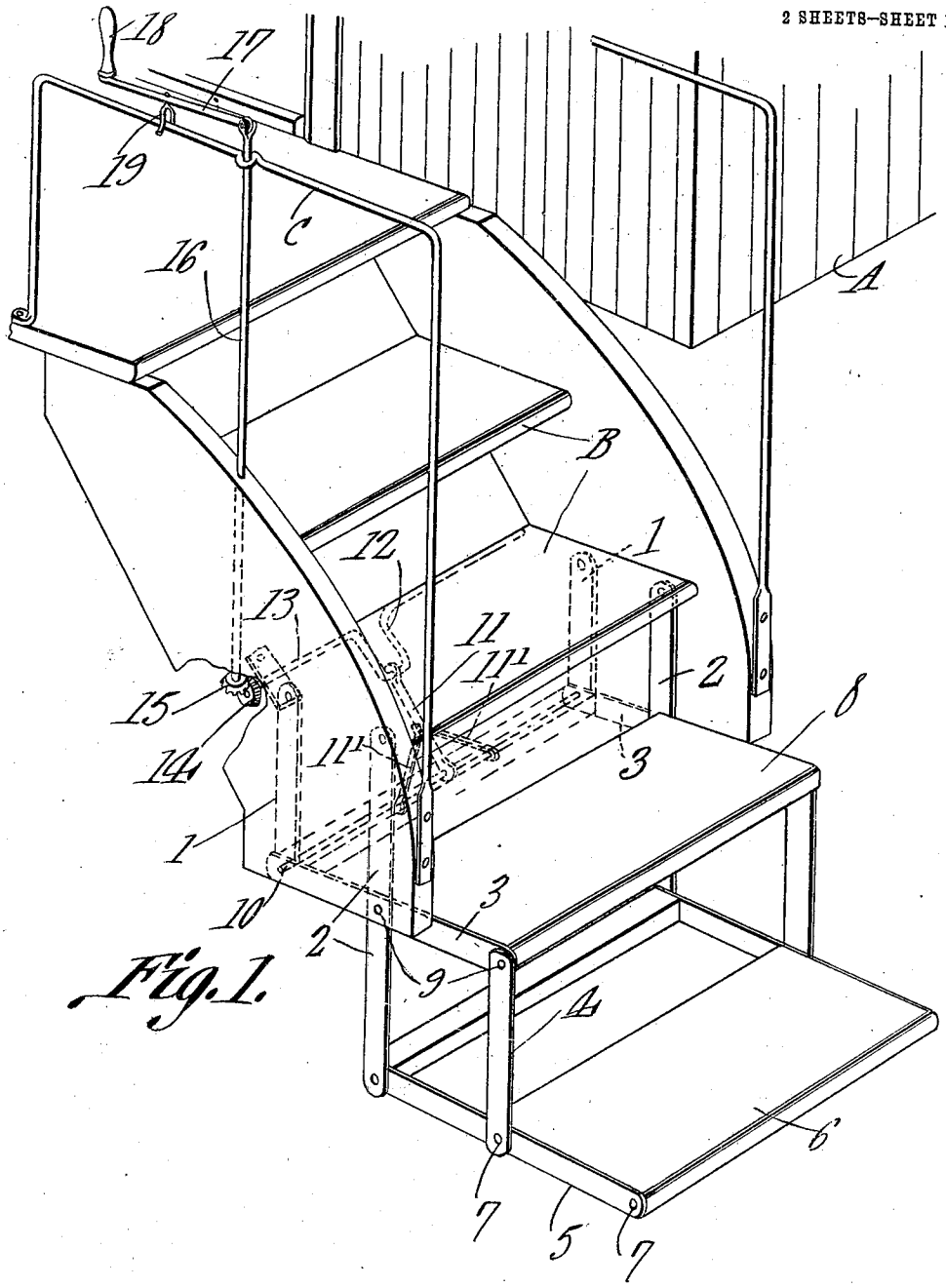

Fig. 1.

Witnesses

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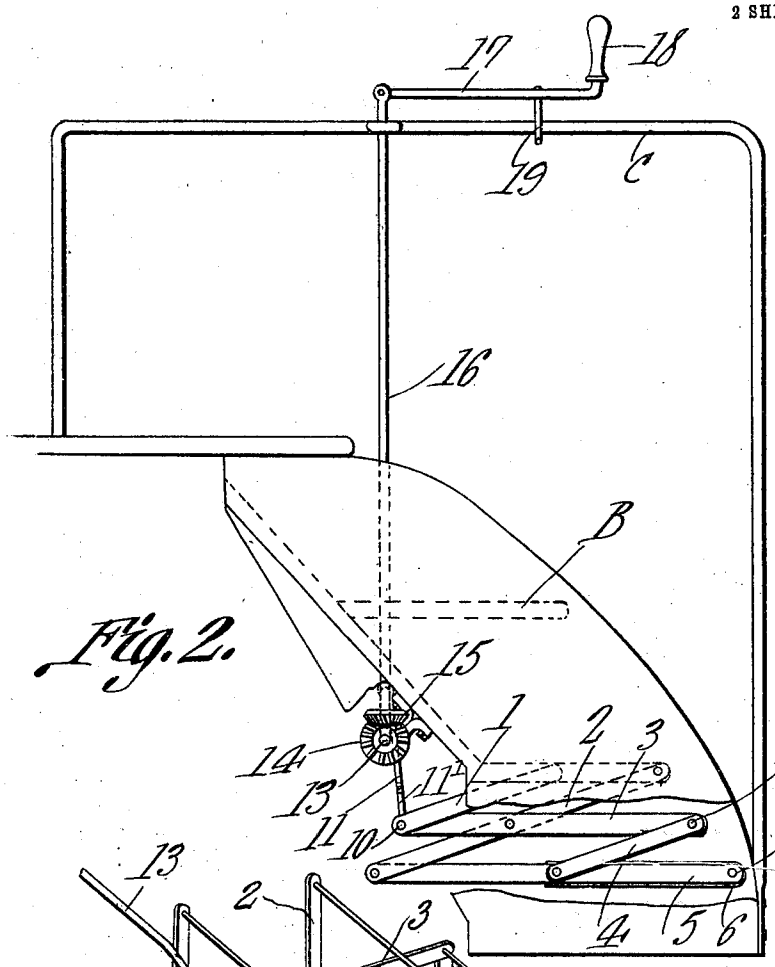

Fig. 2.

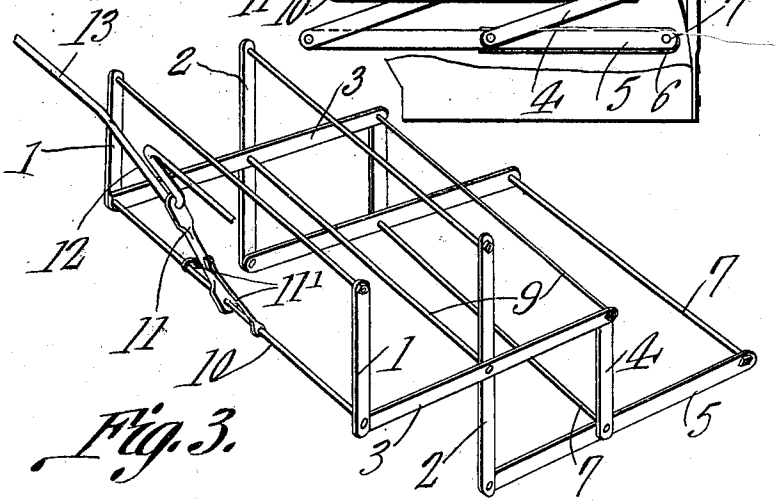

Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN STANCELL BLAKE, OF CHARLOTTE, NORTH CAROLINA.

FOLDABLE CAR-STEP.

996,201. Specification of Letters Patent. Patented June 27, 1911.

Application filed March 13, 1911. Serial No. 614,094.

To all whom it may concern:

Be it known that I, JOHN S. BLAKE, a citizen of the United States, residing at Charlotte, in the county of Mecklenburg and State of North Carolina, have invented a new and useful Foldable Car-Step, of which the following is a specification.

This invention relates to foldable car steps and more particularly to means whereby the step can be readily folded or extended and securely held in either of said positions, the operating mechanism being located at a point where it can be conveniently reached by a person on the platform of the car.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings, the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a perspective view of a portion of a car and showing the steps applied thereto, said steps being extended. Fig. 2 is a side elevation of the steps, the same being shown collapsed, a portion of the step support being removed. Fig. 3 is a perspective view of the step operating levers and showing the connection between said levers and the actuating shaft.

Referring to the figures by characters of reference A designates a car structure of the usual form and provided with steps B such as ordinarily provided, there being a railing C arranged along the outer side of the steps.

Levers 1 and 2 are pivotally connected to each side of the lower step B and the lower end of each lever 1 is connected to the adjacent lever 2 by a lever 3. A link 4 extends downwardly from the free end of lever 3 and is pivotally connected, at its lower end, to a side strip 5 one end of which is pivotally connected to the lower end of lever 2. The side strips 5 are attached to the ends of the lower extension step 6, by means of bolts 7 extending entirely through the step. Levers 3 are fastened to the ends of the upper extension step 8 by means of bolts 9 extending entirely through the step, these bolts 7 and 9 also constituting connections between the levers and links. By reason of the arrangement of links and levers shown and described, it will be apparent that during the movement of the levers in one direction, the step 6 can be caused to fold under the step 8 and said step 8 can be caused to fold under the lower one of the steps B so as to occupy a comparatively small space, as indicated in Fig. 2.

The lower ends of the links 1 are connected by a rod 10 and a link 11 having braces 11′ connects this rod to the crank 12 of a shaft 13 journaled under the steps B. A gear 14 is secured to one end portion of shaft 13 and meshes with another gear 15 secured to the lower end of an operating shaft 16. Said last mentioned shaft extends upwardly above the steps B and its upper end portion is journaled within the railing C and is pivotally engaged by a lever 17 having a handle 18. A yoke 19 is carried by and hangs downwardly from this lever and is adapted to straddle the railing so as to hold the shaft 16 against rotation. When it is desired to fold the extension steps under the main step B lever 17 is swung upwardly so as to lift the yoke 19 out of engagement with the railing C and, by means of lever 17, shaft 16 is rotated. Motion is transmitted from this shaft to the shaft 13 through gears 15 and 14 and the crank 12 is caused to pull on the link 11 and thus elevate the rod 10. The lazy tongs formed by the links and levers 1, 2, 3, 4 and 5 are thus folded and the steps 8 and 6 are caused to move upwardly and under the lower step B as indicated in Fig. 2. Upon the completion of this folding of the steps, the link 11 moves slightly past the dead center and against the back of the fixed steps B as indicated in Fig. 2 by dotted lines. At the same time lever 17 is brought into position, over the railing and, by swinging the lever downwardly, the yoke 19 can be caused to engage the railing C and thus lock the parts against displacement.

To lower the steps 6 and 8 the foregoing operation is reversed, the lever 17 being elevated so as to disengage the yoke 19 from the railing C and said lever being then rotated so as to cause shaft 13 to be revolved. The link 11 will therefore be lowered and will press against the lazy tongs and cause them to be extended and thus project the steps 6 and 8 to the positions shown in Fig. 1.

Lever 17 can then be secured against rotation by swinging it downwardly so as to bring the yoke 19 into engagement with the railing.

What is claimed is:—

1. The combination with a car structure and steps fixedly connected thereto, of lazy tongs depending from the lower one of said steps, extension steps carried by the lazy tongs, an actuating shaft extending above the steps, means operated thereby for shifting the lazy tongs to move the extension steps toward or away from the fixed steps, a railing, an actuating lever connected to said shaft and means on the lever for engaging the railing to hold the shaft against rotation.

2. The combination with fixed steps, and a railing adjacent thereto, of lazy tongs pivotally connected to and extending downwardly from the fixed steps, extension steps carried by and movable with the lazy tongs, a crank shaft, a link connection between the crank shaft and lazy tongs, a shaft journaled upon the railing, means for transmitting motion from said shaft to the crank shaft and means for actuating the shafts to rotate the crank and shift the link to elevate the extension steps, said link being movable, during such shifting past the dead center and against the fixed steps to hold the extension steps in elevated positions.

3. The combination with fixed steps, and a railing adjacent thereto, of extension steps, an operating shaft, means actuated by said shaft for shifting the extension steps under or outwardly from the fixed steps, a lever pivotally connected to the operating shaft, and means on the lever and movable into engagement with the railing to hold the extension steps in either of their positions.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN STANCELL BLAKE.

Witnesses:

HENRY C. WILLIAMS,

C. J. STIMSON.