N. ARNOLDY.

FOLDING CAR STEP.

APPLICATION FILED FEB. 13, 1913.

1,066,974. Patented July 8, 1913.

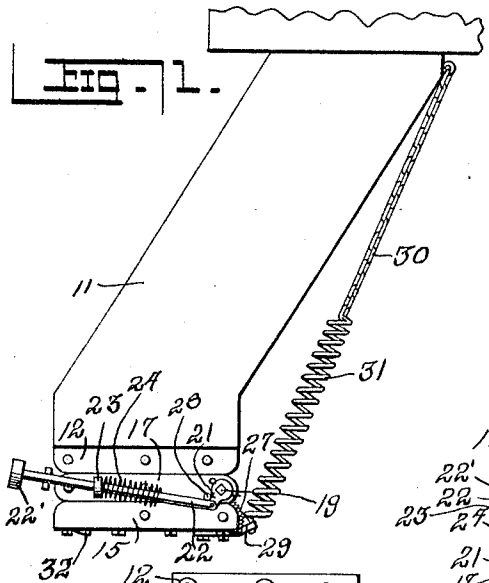


FIG. 1.

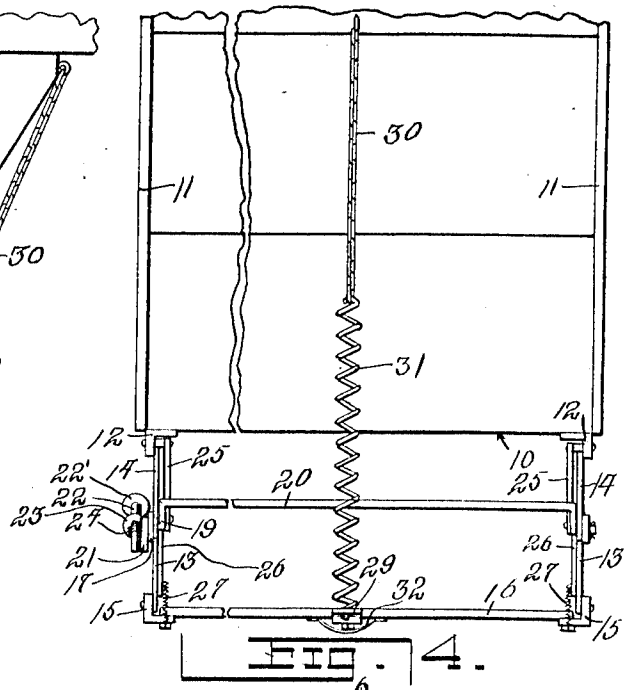


FIG. 4.

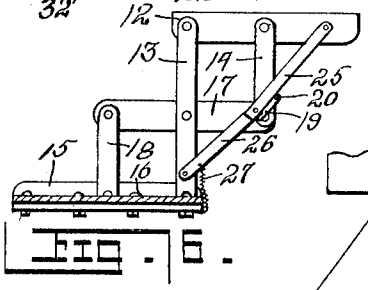


FIG. 6.

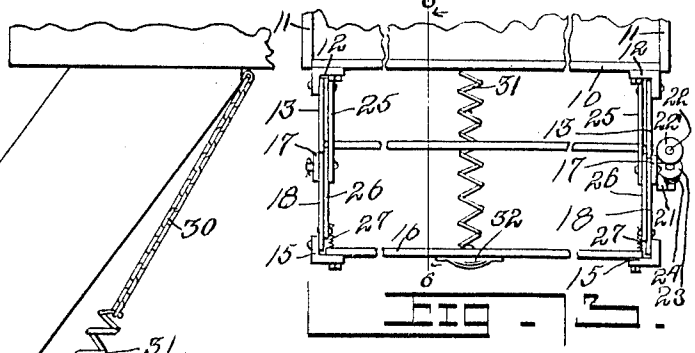


FIG. 3.

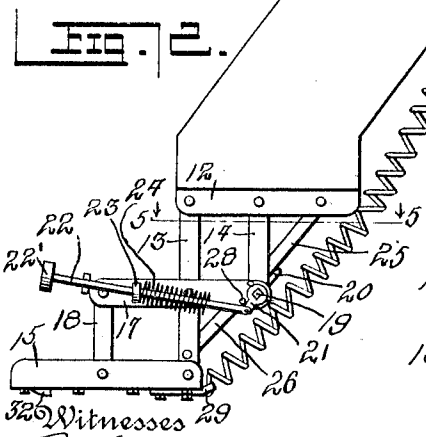


FIG. 2.

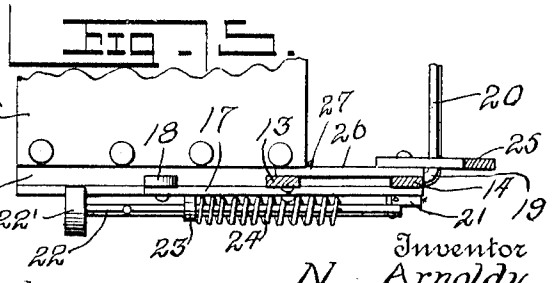


FIG. 5.

Witnesses
R. T. Williams.
Harry M. Test.

Inventor
N. Arnoldy.
By Chamberlain & Chamberlain
Attorneys

UNITED STATES PATENT OFFICE.

NICHOLAS ARNOLDY, OF OSBORNE, KANSAS.

FOLDING CAR-STEP.

1,066,974. Specification of Letters Patent. Patented July 8, 1913.

Application filed February 13, 1913. Serial No. 748,155.

To all whom it may concern:

Be it known that I, NICHOLAS ARNOLDY, a citizen of the United States, residing at Osborne, in the county of Osborne, State of Kansas, have invented certain new and useful Improvements in Folding Car-Steps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in car steps, and particularly to a folding auxiliary step therefor.

The principal object of the invention is to provide a simple device of this character which may be quickly and easily folded under the bottom step of the railway coach, or quickly unfolded to operative or extended position.

Other objects and advantages reside in the peculiar construction and arrangement of parts hereinafter to be described, illustrated in the accompanying drawings.

In the drawings: Figure 1 is a side elevation of the lower portion of a railway step, showing my invention in folded position. Fig. 2 is a view showing the same in extended position. Fig. 3 is a front view showing the step in extended position. Fig. 4 is a rear elevation of the same. Fig. 5 is a horizontal sectional view on the line 5—5 of Fig. 2, showing one end of the step. Fig. 6 is a vertical section on the line 6—6 of Fig. 3.

Referring particularly to the accompanying drawings, 10 represents the bottom step of the steps of a railway train, and 11 the side guards of the step. Attached to each end of the step 10 is an angle plate 12 and pivotally connected to these plates are the long depending links 13 and the shorter depending links 14, the latter being arranged to the rear of the links 13, approximately half way of the length of the angle plates 12. Pivotally connected at their inner ends to the lower ends of the longer links 13 are the angle plates 15, these plates having secured thereto the tread 16 of the auxiliary step. Pivoted at its center to the center of the link 13 is a horizontally extending link 17, the rear end of which is pivotally connected to the lower end of the link 14 and the forward end to the upper end of a short link 18 which is pivotally connected at its lower end to the central portion of the plate 15. Thus are formed toggle connections between the bottom step 10 and the auxiliary step 16. The pivotal connection between the links 14 and the rear ends of the links 17 is in the form of a crank shaft 19, the crank portion 20 thereof being disposed between the links 14 and extending longitudinally under the step 10. On the outer end of the shaft 19 is an arm 21 and pivotally connected at its rear end to the outer end of this arm is an operating rod 22, this rod sliding through a guide eye 23 carried by the outer link 17 at a point intermediate the links 13 and 18.

Mounted on the rod 22, and secured at one end to the rod, and at its other end to the guide eye 23 is a strong coil spring 24, this spring holding the rod 22 normally in outwardly projecting position to hold the crank portion 20 of the shaft 19 in a rearward position. A hand grip 22′ is carried by the outer end of the rod 22 for manipulation thereof.

Pivotally connected at one end to the rear end of each of the angle plates 12 is a link 25, the other end of said link being pivotally connected to one end of a link 26, which latter link is pivotally connected at its other end to the link 13 near the lower end thereof, the pivotal connection between the links 25 and 26 being in line to be engaged by the crank portion 20 of the shaft 19. Connected to the links 26 and to the angle plate 15 are the coil springs 27, these springs having a tendency to draw and hold the links 25 and 26 in extended position. On the inner end of the link 17 is an outwardly extending pin 28 to limit the movement of the radial arm 21. Connected to an eye member 29 carried by the tread of the auxiliary step, and at its other end to a chain 30 is a strong coil spring 31, this spring having a normal tendency to draw the auxiliary step up under the step 10 when the links 25 and 26 are thrown out of the position indicated in Figs. 2 and 6.

Assuming the parts to be in position as shown in Fig. 2, and it is desired to fold the auxiliary step under the step 10, the hand grip 22′ of the rod 22 is pushed in by means of the hand grip 22′ against the tension of the spring 24. This pushes the arm 21 and rotates the shaft 19. The rotation of the shaft 19 causes the crank portion 20 to move against the pivotal connection between the links 25 and 26, and breaks the

joint, thus permitting the spring 31 to draw the auxiliary step up under the step 10. It will then be in the position as shown in Fig. 1.

To pull the step into extended position, I provide a hand grip device 32 secured to the under side of the tread 16 of the step. Upon grasping this hand grip 32 and pulling downwardly, the auxiliary step will be pulled into the position shown in Fig. 2, the links 25 and 26 being moved into position against the crank portion 20, the springs 27 assisting in the straightening of these links 25 and 26 and holding them in such position.

What is claimed is:

An auxiliary car step comprising a tread member, toggle connections between the bottom step of the car and the tread member, a crank shaft carried by the toggle connections, links pivoted together and to the toggle connections for holding said connections extended, means for turning the crank shaft to break the joints of the links, and means to move the tread member up under the said bottom step when said joints are broken.

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

NICHOLAS ARNOLDY.

Witnesses:
WILLIAM H. GRAY,
JAMES SPEER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."