Oct. 6, 1959 F. B. LEWIS 2,907,402

PORTABLE STEPS

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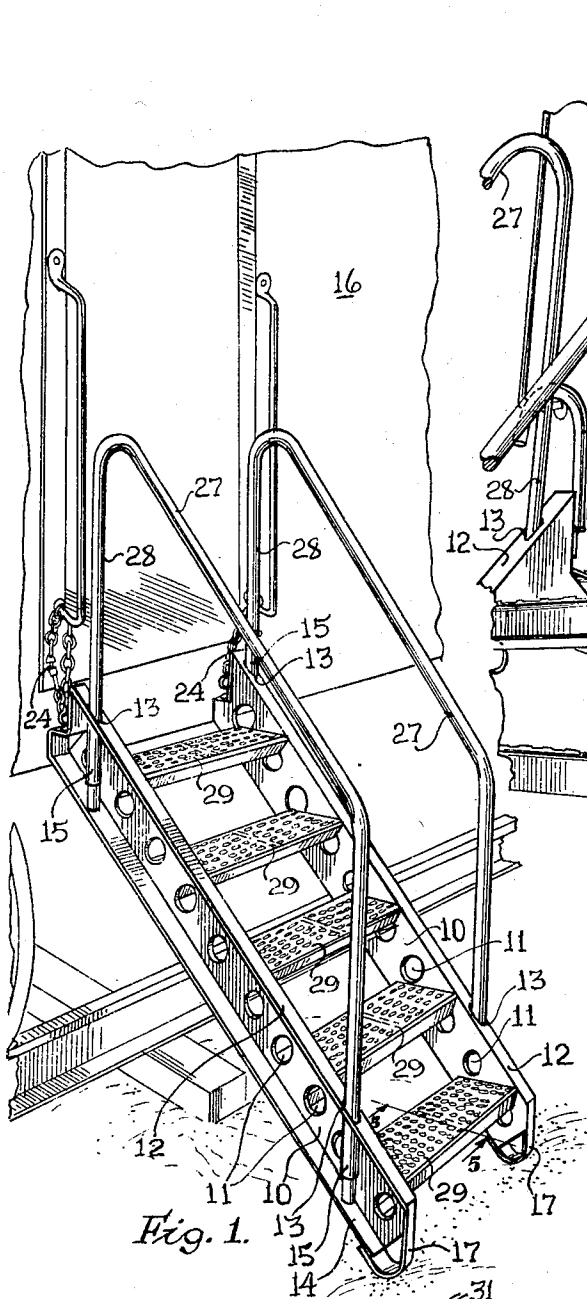



Fig. 1.

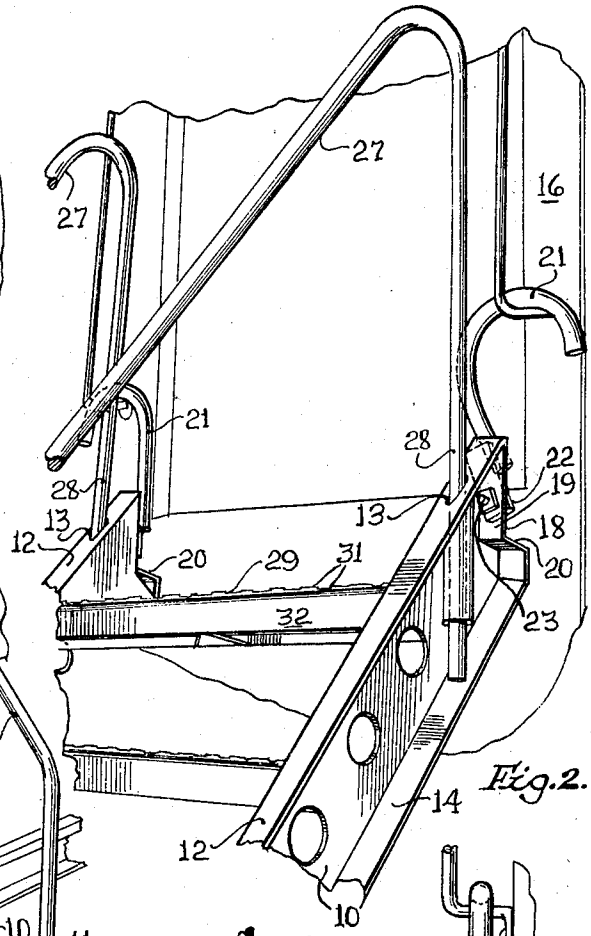



Fig. 2.

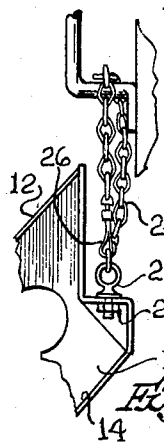



Fig. 3.

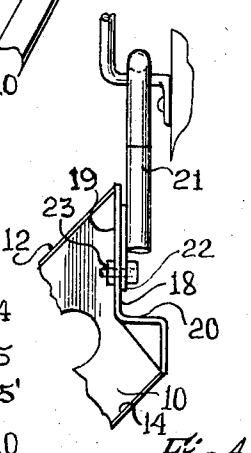



Fig. 4.

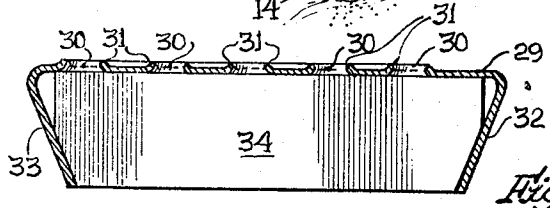



Fig. 5.

INVENTOR.
FRANCIS B. LEWIS
BY Hruby & Hruby
HIS ATTORNEYS.

United States Patent Office

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# PORTABLE STEPS

Francis B. Lewis, Omaha, Nebr., assignor to Robert B. Borucki, doing business as Research Engineering Associates, Evanston, Ill.

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1 Claim. (Cl. 182—106)

This invention relates to new and useful improvements in portable steps for use in connection with railroad cars which are used for living quarters for crews working on track and right-of-way, either laying new track or engaged in maintenance work. Such cars are grouped into camps, consisting of kitchen, dining, sleeping, recreation, tool and office cars. Each car has a side entrance and requires a semi-permanent stairway attached in such manner that it will provide safe and reliable means for the crew to enter and leave these cars with absolute safety.

It is an object of this invention to provide such a step, the safety being centered on the step tread which is provided with perforations and is self-clearing and on the raised peripheral edge of the perforations for anti-skid properties, as well as on the handrails on the side of the step providing means of support especially in inclement weather, and the positive means of securely mounting the step with respect to the railroad car when in use.

Another object is the provision of a portable step providing the above features while being light in weight and of such strength and durability as to withstand the use and abuse such steps are subjected to.

Another object of my invention is to provide in a device of this character a swivel type hook for readily attaching the portable step to the vertical hand holds on the side of the railroad car.

Yet another object of my invention is the provision in a device of this character of a hand rail that may be readily removed from the portable step for storage when not in use.

Another and equally important object of my invention is the provision in a device of this character of a non-skid self-clearing step tread.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a perspective view of my invention as it is associated with a door of a railroad outfit car;

Fig. 2 is a fragmentary perspective view of the swivel hook means for attaching my portable step to the hand holds of a railroad car;

Fig. 3 is a fragmentary side elevational view of a swivel chain connection for attaching my portable step to a railroad outfit car;

Fig. 4 is a fragmentary side elevational view of my swivel hook connection; and

Fig. 5 is a detail sectional view taken on line 5—5 of Fig. 1, of my anti-skid and self-clearing step tread.

The portable step of my invention is an all-metal construction and comprises side frame stringers **10**. These stringers **10** are substantially U-shaped in cross section



as viewed in Figs. 1 and 2 and have cut-outs **11** formed in their medial portion. By providing the stringers **10** with cut-outs **11**, the portable step is made considerably lighter without sacrificing any appreciable structural strength.

The upper laterally extending flange **12** of the stringer **10** adjacent either end thereof has formed therein apertures **13**. Welded to the medial portion of the stringer **10** between the flange **12** and the other laterally extending flange **14** and in alignment with the aperture **13**, is a socket **15**. This socket **15** is placed diagonally across the longitudinal length of the stringer **10** as viewed in Fig. 1, to a degree in direct proportion to the angle between the stringer **10** and the side wall **16** of the railroad outfit car and the surface on which the step rests. Such placement of the socket **15** will locate the same in a substantially vertical plane when the stringers **10** of the portable step are placed in operative relation to the side wall **16** of the car.

Each stringer **10** is provided with a curved heel section **17**. The heel section **17** is preferably of the same width as the flanges **12** and **14** and is attached to the step so as to appear to be a continuation of the flange **12**, being bent back upon itself and in confronting relation with the flange **14** (see Fig. 1).

The opposite ends of the stringers **10** have the ends of the flanges **12** and **14** joined by a bracket **18**. This bracket **18** provides a vertically disposed portion **19** and a horizontal offset portion **20**.

To removably attach my portable step to the side wall **16** of a railroad car, I have provided a pair of hook elements **21**. These hook elements **21** have a flat rectangular metal member **22** welded adjacent the end of the straight portion or leg of the hook element **21** as viewed in Fig. 4. This flat metal member **22** is then fastened to the vertically disposed portion **19** of the top bracket **18** by means of a nut and bolt connector **23**.

This hook element **21** is pivotable about its connection **23** to the stringer **10**.

If it is desired, rather than employing the hook elements **21** for connecting the portable step to the car, I provide a chain assembly **24** to be employed instead of the hook elements **21**. In using the chain assembly **24**, I provide an eye bolt **25** connected by a nut and bolt **25'** to the offset **20** of the bracket **18**, as viewed in Fig. 3. The chain may be fastened to the eye bolt **25** by the use of a swivel snap **26**.

A one-piece detachable hand rail **27** is so constructed that the legs **28** thereof may be inserted through the apertures **13** formed in the flange **12** and journaled through the sockets **15** so that the end of the rail **27** rests on the inner side of the bottom flange **14** as viewed in Figs. 1 and 2. By such construction and arrangement of parts, the hand rail **27** may be readily detached from the portable step.

Fig. 5 discloses an improved step tread associated with my portable step. The tread **29** has a series of apertures **30** formed therein by punching out the metal of the tread. In so forming the apertures **30**, a non-skid tongue **31** is formed about the peripheral edge of the apertures **30**. The leading edge **32** as well as the trailing edge **33** of the tread **29** are bent back at a substantial angle, with the leading edge **32** bent at a slightly greater angle as viewed in Fig. 5. By reason of such greater angle to the leading edge **32**, the treads **29** of the portable step are self-clearing and, as such, aid considerably in preventing accidents. The two edges **32** and **33** at the center line of the tread **29** are joined by a gusset **34**. The gusset **34** is of such thickness as to add to the weight supporting strength of the tread **29** and at the same time will not prevent the tread **29** from having a slight vertical displacement under the weight load. Such a displace-

ment is desirable, as it prevents ice, mud, or the like from forming a slick continuous covering on such tread 29.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claim.

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

A collapsible portable step for railroad outfit cars or the like comprising vertically inclined spaced apart U-shaped stringers with said stringers having their arms extending in opposite outward directions with respect to their medial portion, one end of the arms of each of said stringers provided with ground engaging heel elements, the opposite ends of the arms of each of said stringers being connected by a stepped bracket, a plate pivotally carried by a portion of said stepped bracket in a spaced parallel relation to the side wall of the car, a hook carried by said plate for releasably attaching said step to the hand holds of the car and pivotable out of attaching position about a horizontal axis through an arc extending in a spaced parallel plane with respect to the side wall of the car, a hand rail for said step, sockets carried by the medial portion of said stringers between the arms thereof and through which projects portions of said hand rails, one of said arms of each of said stringers having openings formed therein in alignment with said sockets and through which said portions of said hand rail is inserted, the other of said arms being engageable by said portions of said hand rail when projected through the openings and said sockets so as to prevent further projection of said portions of said hand rails relative to said stringers.



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