Aug. 17, 1937. V. WILLOUGHBY 2,090,494

FOLDING HANDRAIL

Filed Jan. 21, 1937

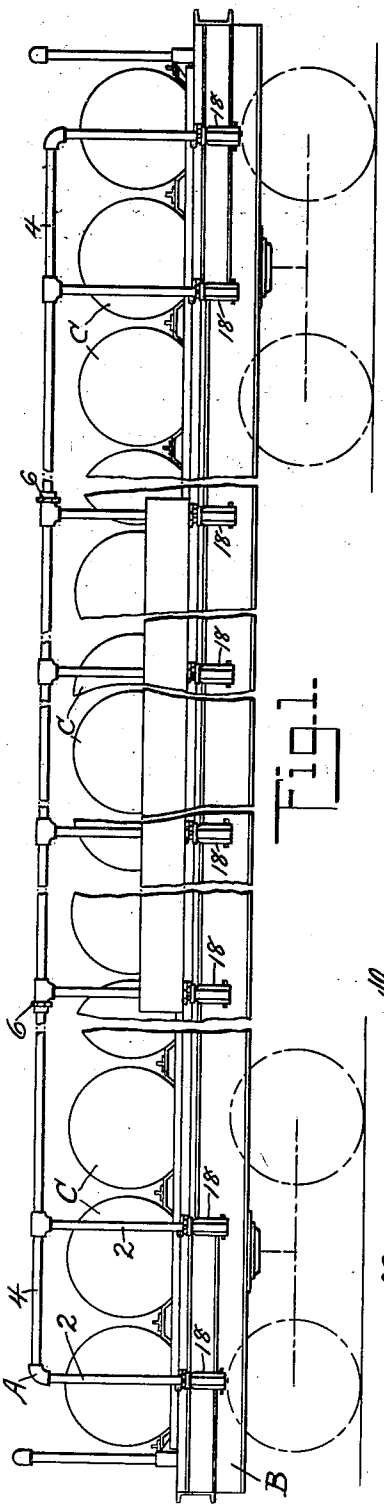

Fig. 1.

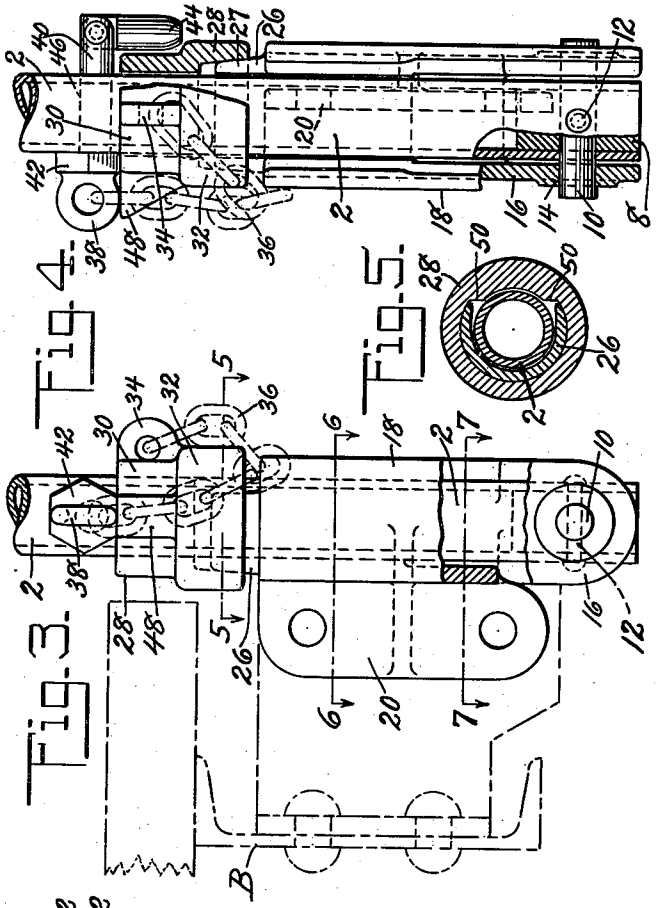

Fig. 4.

Fig. 5.

Fig. 3.

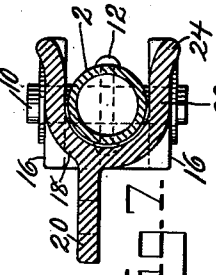

Fig. 7.

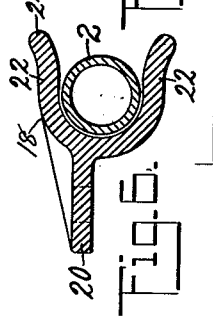

Fig. 6.

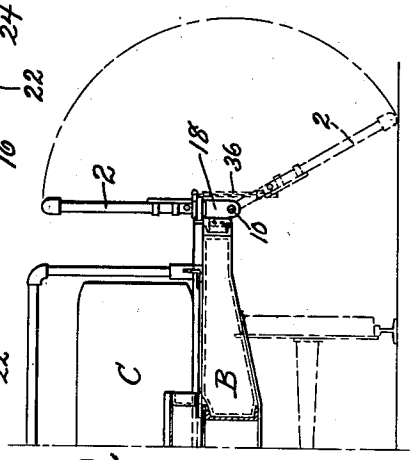

Fig. 2.

INVENTOR

Victor Willoughby

BY

Donald U. Rich

ATTORNEY

Patented Aug. 17, 1937

2,090,494

UNITED STATES PATENT OFFICE

2,090,494

FOLDING HANDRAIL

Victor Willoughby, Ridgewood, N. J., assignor to American Car and Foundry Company, New York, N. Y., a corporation of New Jersey

Application January 21, 1937, Serial No. 121,455

6 Claims. (Cl. 105—457)

This invention relates to folding rails in general and in particular to folding hand rails intended for use in connection with railway cars.

In prior car construction in which hand rails were necessary they have generally been of the type which are vertically slidable within stake pockets carried by the side of the car or of the type which could be collapsed with respect to the underframe. With all types of stakes and hand rails previously used the locking device for maintaining them in the operative position have been extremely cumbersome and hard to operate. It is an object, therefore, of the invention to provide a hand rail of the folding type in which the uprights or stakes may be readily locked in the upright position.

Another object of the invention is the provision of a lock for an upright which will automatically lock the upright in a substantially vertical position.

A further object of the invention is the provision of a locking means for the uprights of a folding hand rail which may be adjusted to various positions thus compensating for inequalities of the component parts.

These and further objects of the invention will be apparent to persons skilled in the art from a study of the following description and accompanying drawing, in which:

Figure 1 is a partial side view of a flat car showing the improved hand rail applied thereto;

Fig. 2 is an end view of one-half the car showing the hand rail in raised and lowered position;

Fig. 3 is an enlarged side view showing the improved hinging and locking member for the rail uprights;

Fig. 4 is an enlarged front view of the device shown in Fig. 3, and

Figs. 5, 6, and 7 are sectional views taken on lines 5—5, 6—6 and 7—7 respectively of Fig. 3 and showing details of the locking member and hinge casting.

Referring now to the drawing in detail, it is seen that the folding hand rail A is formed in a plurality of separable sections and applied to a railway car B, which in the instance shown carries a cargo of tanks C. Each section of the rail comprises at least two uprights or posts 2 joined together by horizontally disposed connecting bars 4 and the joint 6 between sections is of any well known type permitting ready separation. Each upright post or stake is of tubular formation and has a hinge plug 8 driven in the lower end thereof to receive hinge pin 10 locked in the post by rivet or other means 12. Prior to the fastening of the hinge pin in position it is passed through openings 14 formed in spaced parallel walls 16 of stake or post pocket casting 18. The stake or post pocket casting is of general Y cross section having a leg 20 adapted to be secured to a bracket or other means forming part of the car as shown in Fig. 3 and with spaced diverging arms 22, the outer ends of which are curved outwardly as at 24 to assist in guiding the post into position. These diverging arms merge to form the parallel upright walls 16 previously mentioned. The arms 22 form between them a substantially semi-circular recess and these arms are extended above the leg 20, thus forming a semi-circular projection 26 which is tapered upwardly slightly as at 27.

In order to retain the stake in its upright position a sliding locking ring 28 is provided having a tubular portion 30 surrounding the tubular stake and a bell-shaped lower portion 32 adapted to fit over the tapered projection 26 of the stake casting. The locking ring is formed with an ear 34 to which one end of chain 36 is secured, the other end being secured to a jointed safety locking pin 38. The locking pin is of novel construction and has its shank 40 eccentrically arranged with respect to the head portion 42 which is of polygonal form. The shank is provided with a pivoted end portion 44 which will prevent accidental removal of the pin from its position in openings 46 of the stake or post. The sliding locking ring is formed with a projecting lug 48 which provides bearing surface for the polygonal head of the locking pin, thus insuring full engagement between the head and locking ring at all times. In order that the projection may always be locked in position to be engaged by the locking pin, the bell-shaped portion of the locking ring is formed with shoulders 50 (Fig. 5) which prevent any rotation of the ring.

The operation of the device will be as follows and assuming the parts to be in the position as shown in Figs. 3 and 4: The portion 44 of the locking pin is raised into alignment with the shank 40 after which the locking pin may be removed and the locking ring 28 slid upwardly along the stake, thus freeing the stake and permitting its rotation outwardly and downwardly about hinge pin 10. In returning the stake from its lowered position to its upright locked position it is only necessary that the stake be rotated about the pin 10 until such time as the stake contacts with the back semi-circular portion of the stake pocket casting, after which the locking ring may be lowered in its proper position thus effectively holding the stake in its upright posi-

tion. The transversely extending safety locking pin is then inserted through the opening in the stake and the proper shoulder of the polygonal head chosen which will contact with the upper surface of projecting lug 48. It is thus seen that the pocket casting and sliding locking ring may be rough castings, since the eccentric safety locking pin will take care of considerable inequalities in the parts which would permit different degrees of engagement between the locking ring and the pocket casting.

While the invention has been described and disclosed as applied to a hand rail, it is, of course, obvious that it is equally applicable to individual stakes or even folding gates and it is also obvious that various modifications and rearrangements of parts may be made but all such modifications and rearrangements of parts are contemplated as fall within the scope of the following claims.

What is claimed is:

1. A folding hand rail for rail cars comprising, a stake pocket casting formed of general Y cross-section having the leg thereof secured to the car structure and the diverging arms directed outwardly to form a stake receiving recess, a stake hinged to the lower portion of said arms and foldable into said recess, and a sliding locking ring carried by the stake and engageable over the upper portion of the diverging arms to lock the stake in the recess.

2. A folding hand rail for rail cars comprising, a stake pocket casting formed of general Y cross-section having the leg thereof secured to the car structure and the diverging arms directed outwardly to form a stake receiving recess, a stake hinged to the lower portion of said arms and foldable into said recess, a sliding locking ring carried by the stake and engageable over the upper portion of the diverging arms to lock the stake in the recess, and a safety locking pin engaging the stake above the locking ring to retain the ring in stake locking position.

3. A folding hand rail for rail cars comprising, a stake pocket casting formed of general Y cross-section having the leg thereof secured to the car structure and the diverging arms directed outwardly to form a stake receiving recess, a stake hinged to the lower portion of said arms and foldable into said recess, a sliding locking ring carried by the stake and engageable over the upper portion of the diverging arms to lock the stake in the recess, and a safety locking pin having a shank traversing the stake above the locking ring, said pin having a polygonal head eccentrically arranged on the shank and rotatable to the proper position whereby a surface of the head engages the locking ring to retain the ring in stake locking position.

4. A folding hand rail for rail cars comprising, a stake pocket casting formed of general Y cross-section having the leg thereof secured to the car structure and the diverging arms directed outwardly to form a stake receiving recess, said diverging arms being formed with upper and lower projections, a stake hinged between the lower projections and foldable into said recess, and a sliding locking ring carried by the stake and engageable over the upper projections to thereby lock the stake in the recess.

5. A folding hand rail for rail cars comprising, a stake pocket casting formed of general Y cross-section having the leg thereof secured to the car structure and the diverging arms directed outwardly to form a stake receiving recess, said diverging arms being formed with upper and lower projections, a stake hinged between the lower projections and foldable into said recess, a sliding locking ring carried by the stake and engageable over the upper projections to thereby lock the stake in the recess, and a safety locking pin having a shank engaging the stake and an eccentrically positioned polygonal head engageable with the locking ring to retain the locking pin in various stake locking positions.

6. A folding hand rail for rail cars comprising, a stake pocket casting formed of general Y cross-section having the leg thereof secured to the car structure and the diverging arms directed outwardly to form a stake receiving recess, said diverging arms being formed with upper and lower projections, a stake hinged between the lower projections and foldable into said recess, a sliding locking ring carried by the stake and engageable over the upper projections to thereby lock the stake in the recess, and a safety locking pin having a shank engaging the stake and an eccentrically positioned head engageable with the locking ring to retain the locking ring in stake locking position, said head being of polygonal form and providing a plurality of surfaces separately engageable with the locking ring to thereby compensate for inequalities in the size of the locking ring and projections.

VICTOR WILLOUGHBY.