

Nov. 21, 1944.

R. E. DAHL

2,362,991

TAIL WHEEL LIFTING ADAPTER FOR FORK TYPE TAIL WHEELS

Filed Sept. 29, 1943

2 Sheets-Sheet 1

Fig. 1.

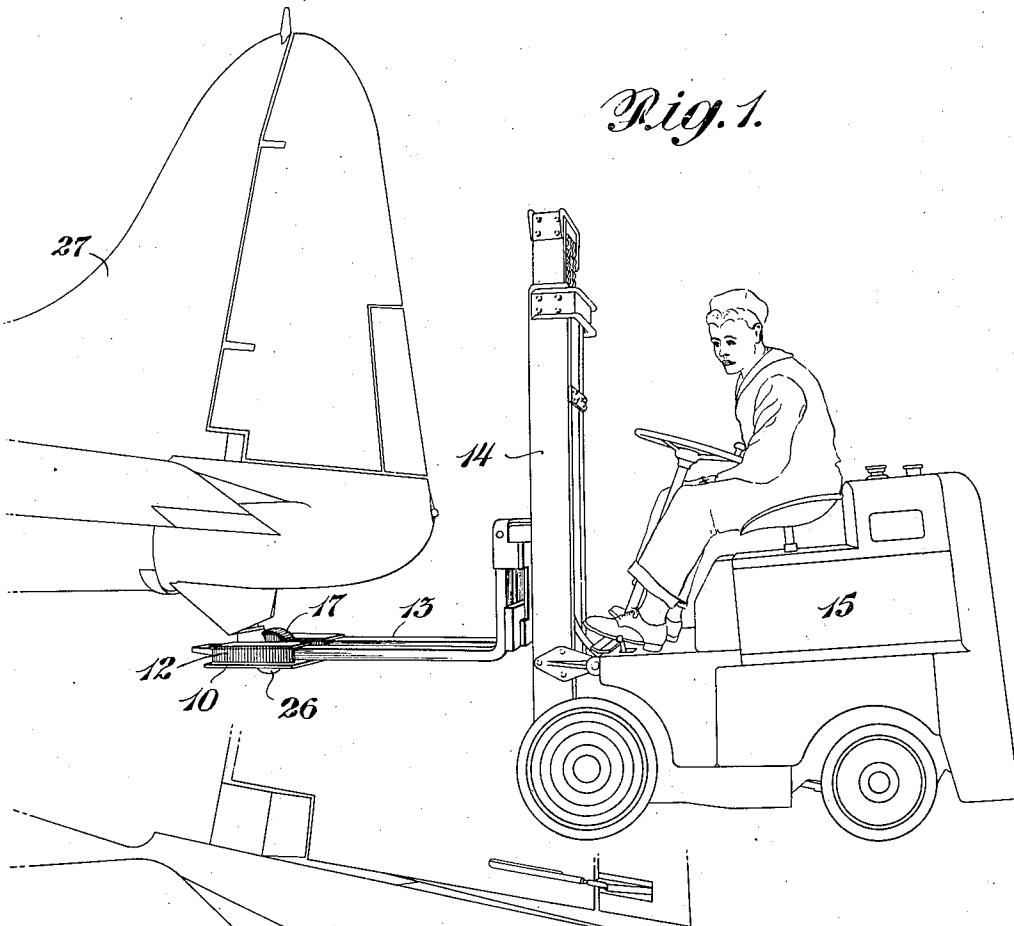
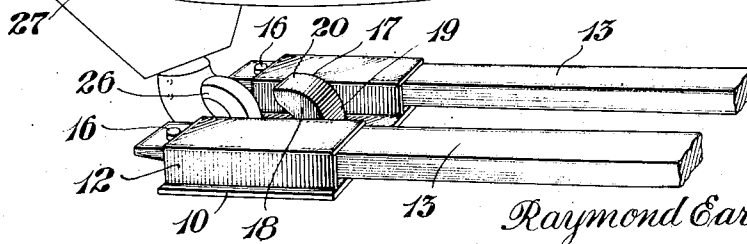


Fig. 2.



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2 Sheets-Sheet 2

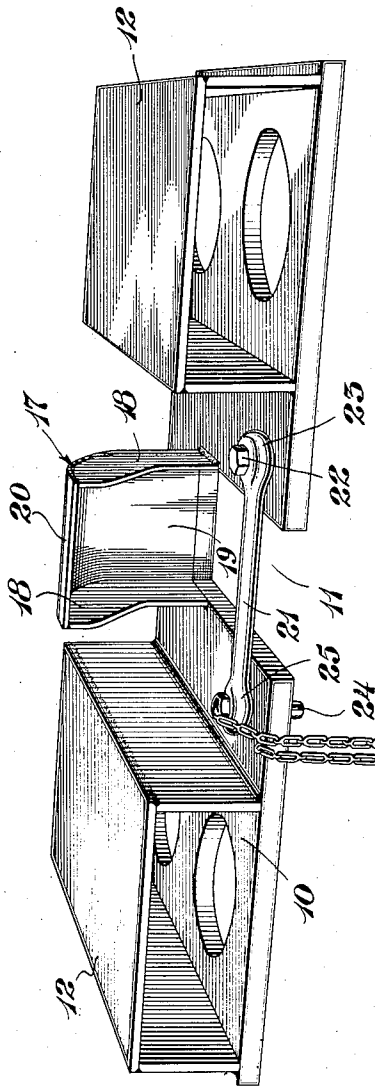


Fig. 3.

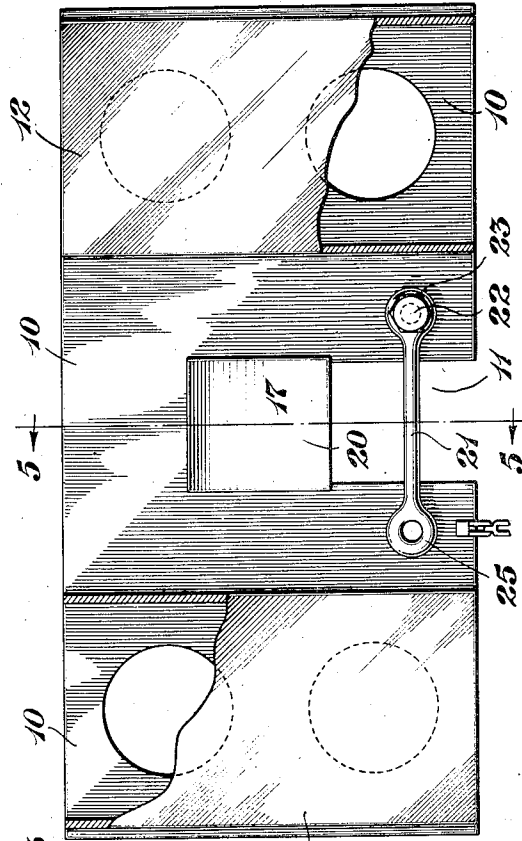


Fig. 4.

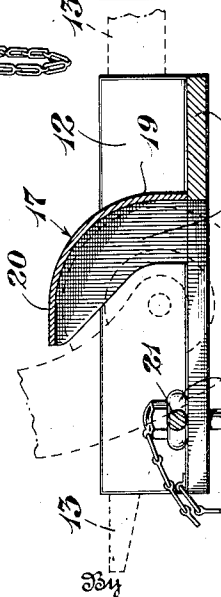


Fig. 5.

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UNITED STATES PATENT OFFICE

2,362,991

TAIL WHEEL LIFTING ADAPTER FOR FORK
TYPE TAIL WHEELS

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Application September 29, 1943, Serial No. 504,249

6 Claims. (Cl. 214—65)

(Granted under the act of March 3, 1883, as
amended April 30, 1928; 370 O. G. 757)

This invention relates to lifting devices for the tail wheel or skid of airplanes and it has a particular relation to devices for lifting the tail wheel so as to raise the fuselage to a flight position and to hold the airplane against movement during machine gun practice at the gun firing butts while grounded.

The principal object of this invention is the provision of a cage or housing adapted to be removably secured to the finger lift of a mobile carloader such as the commercially available Clark carloader, and which may be positioned thereby beneath and in engagement with the tail wheel of an airplane so as to elevate the tail end of the fuselage. The device may also be used for towing an airplane while on the ground.

In order to make the invention more clearly understood there are shown in the accompanying drawings, means for carrying the invention into practical effect, without limiting the improvements in their useful application to the particular construction which for the purpose of explanation has been made the subject of illustration.

In the accompanying drawings:

Fig. 1 is a perspective view of the tail wheel lifting device mounted on the finger lift of a carloader and holding the tail end of an airplane in an elevated flight position;

Fig. 2 is a perspective view on a larger scale of the lifting device shown in Fig. 1;

Fig. 3 is an enlarged perspective view of the lifting device as viewed from the front;

Fig. 4 is a plan view with parts broken away of the structure shown in Fig. 3; and

Fig. 5 is a transverse vertical sectional view taken on line 5—5 of Fig. 4.

Referring to the drawings, an airplane tail wheel lifting device constructed in accordance with the present invention is shown comprising a base plate or support 10 having a rectangular recess or slot 11 formed in its forward edge midway of its length. Welded or otherwise suitably secured to the ends of the base plate 10 on opposite sides of the recess 11 are two housings or box-like structures 12 which may be fabricated from a plurality of flat plates or from sections of a channel bar. These housings are open at their front and rear ends and are adapted to be slid onto the fingers or arms 13 of the lifting mechanism 14 of a carloader 15 and maintained against displacement therefrom by stud bolts 16 dropped through drilled holes in the outer ends of the fingers 13.

Welded or otherwise fixedly secured to the base plate 10 adjacent to the rear end of the recess 11 therein is a forwardly facing cage or wheel retaining hood 17 provided with side walls 18 and rear wall 19 formed with a forwardly curved upper portion 20. A gate bar 21 is pivotally secured at one end to the base plate 10 forwardly of the cage 17 and at one side of the recess 11 by a bolt 22 engageable with an eye 23 formed on the bar 21. This bar is adapted to be swung across the recess 11 and secured in position by a pin 24 engageable with an eye 25 formed in the other end of the bar and with a drill hole formed in the base plate 10.

In operation a carloader 15 having the improved lifting device mounted on the forward ends of the lifting fingers 13 of its elevating mechanism 14 and with these instrumentalities lowered is maneuvered to a position at the tail end of an airplane wherein the tail wheel 26 thereof is disposed within the recess 11 in the base plate or support 10 and in abutting engagement with the rear wall 19 of the cage 17. The gate bar 21 is then swung to the position shown in Figs. 3, 4 and 5 and secured by the pin 24. This securely locks the tail wheel 26 within the cage 17, the gate bar 21, rear wall 19 and curved upper wall 20 preventing any vertical or longitudinal movement and the side walls 18 of the hood together with the side edges of the recess 11 preventing any lateral movement. The elevating mechanism 14 of the carloader 15 is then placed in operation to raise the tail wheel 26 and after end 27 of the fuselage into a flight position wherein the guns of the airplane can be trained upon the targets at the firing butts during ground practice. The weight of the carloader will prevent any rearward or lateral movement of the tail end of the airplane and dispenses with the services of fourteen or more men according to the size of the airplane.

The device herein shown and described may be adapted for use with tail wheels or the fork type as well as with airplanes equipped with tail skids. In addition to this primary function, the present invention can be employed as a quickly attachable towing connection, for use in moving the airplane about the field.

It will be understood, as previously stated that the above description and accompanying drawings comprehend only the general and preferred embodiment of the invention and that various changes in construction, proportion and arrangement of the parts may be made within the scope

of the appended claims without sacrificing any of the advantages of the invention.

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

I claim:

1. A lifting device for airplane tail wheels comprising a support, means on said support for removable engagement with the elevating arm of a carloader, a cage on said support for movement by said carloader into engagement with the tail wheel of an airplane and engaging side, back, and top portions of the wheel for preventing upward, rearward and lateral movement of said tail wheel relative thereto, and means on said support for movement into position forward of said tail wheel for preventing forward and downward movement of said tail wheel relative to said cage.

2. A lifting device for airplane tail wheels comprising a support, means on said support for embracing the elevating arm of a carloader, a hood on said support for movement by said carloader into engagement with the tail wheel of an airplane and for inclosing the sides, rear and upper portions thereof, and removable locking means mounted on said support for movement into position forward of said tail wheel for preventing the displacement of said tail wheel from said cage.

3. A lifting device for airplane tail wheels comprising a support, a pair of spaced tunnel members fixed to said support and adapted to be slid over the ends of the elevating fingers of a carloader, a hood fixed to said support for move-

ment by said carloader around and over the tail wheel of an airplane and means pivotally mounted on said support for movement into the path of travel of said tail wheel for preventing the movement of said tail wheel out of said cage.

4. A lifting device for airplane tail wheels comprising a supporting plate having a recess formed in its forward edge, means fixed to said supporting plate on each side of said recess for removable engagement with the elevating fingers of a carloader, a hood fixed to said supporting plate and extending upwardly and over said recess for movement by said carloader into a position about the tail wheel of an airplane, and locking means on said supporting plate for movement into the path of travel of said tail wheel to prevent the movement of said tail wheel from beneath said hood.

5. A lifting device for a wheeled vehicle comprising a substantially horizontally disposed supporting plate having a slot extending inwardly from one edge, the width of the slot being such that a wheel can be inserted therein, and the length of the slot being such that the wheel can be inserted to such a depth that the axis of the wheel is over said plate; and a removable gate bar operable to close the end of the slot and support a wheel of the vehicle from below when said supporting plate is raised.

6. The device described in claim 5, and including a hood having vertical walls substantially bounding the end and side portions of said slot, the end wall having its upper end portion curved towards the slotted end of said supporting plate to overlie the top of the vehicle wheel and prevent the wheel from rising out of the slot.

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