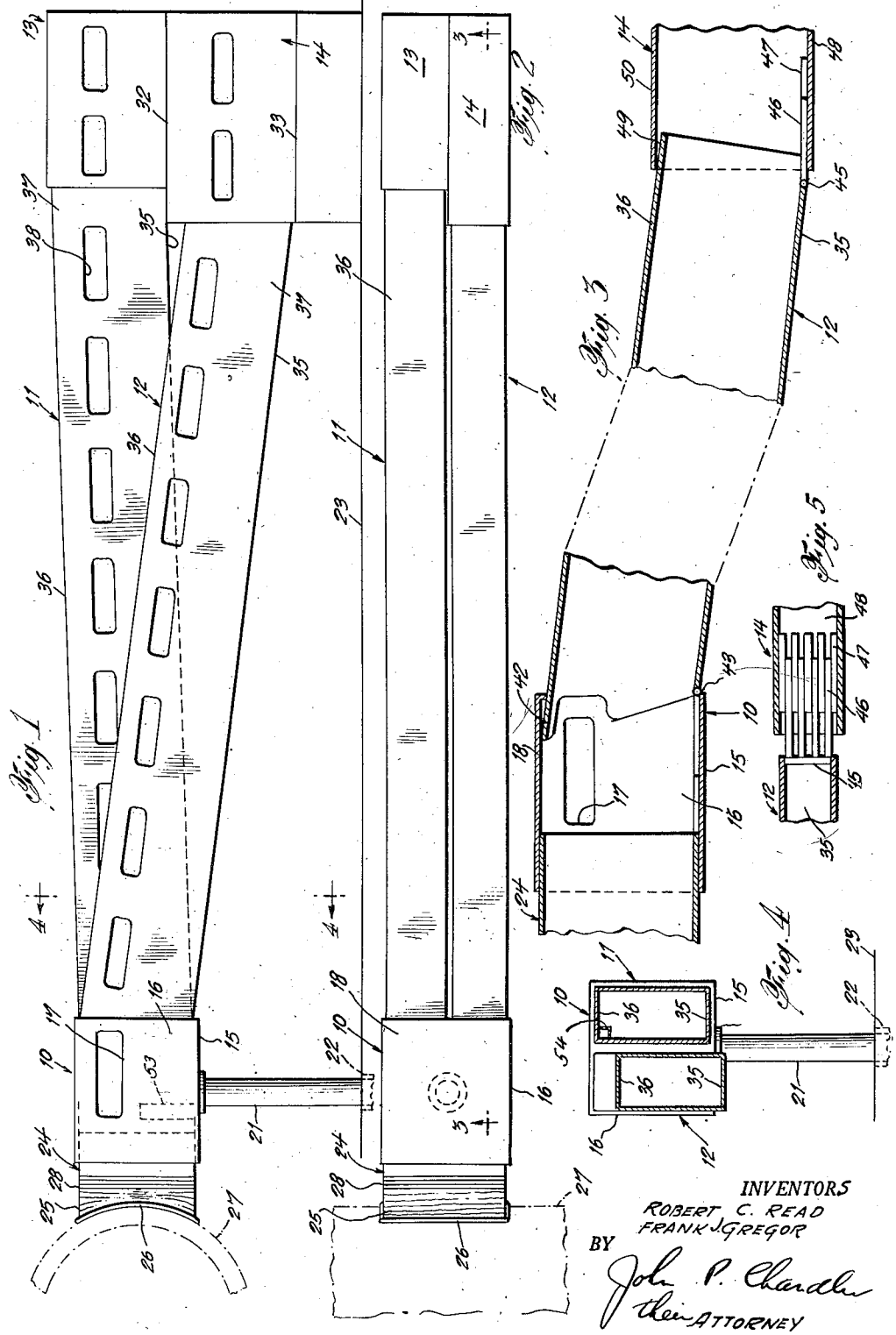
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AIRCRAFT LOADING RAMP

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AIRCRAFT LOADING RAMP

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This invention relates to loading ramps, and relates more particularly to a novel arrangement to facilitate the loading and unloading of passengers on commercial airplanes.

An important object of the invention is the provision of an improved passenger handling apparatus provided with plural ramps, one for loading and the other for unloading of passengers, the apparatus having means for quickly adjusting the height of the outer end to the height of the plane door. A cab at such exit end is arranged to be raised and lowered by hydraulic or other lifting means, and when in its lowered position it occupies a position low enough to enable the tail section of all but the smallest transport planes to pass thereover. The ramps at their outer ends are pivotally joined to such cab, and are raised and lowered with the cab. The opposite ends of the ramps are positioned within a fixed housing having two levels. Thus, the emplaning ramp may lead from the higher level, and the deplaning ramp lead to the lower level. This arrangement effectively separates the oppositely-moving passengers and permits the plane to be unloaded and loaded in a minimum of time.

Another object of the invention is to provide a loading ramp of the character described wherein the cab at the outer ends of the ramp will be provided with a slidable extension which, when the cab is raised to proper height, will be moved outwardly to contact the fuselage of the plane adjacent to the door, and wherein the outer edges of the extension are yieldable to enable such outer edges to conform to the contour of the fuselage. In this fashion the passengers will be protected from wind, rain and snow.

The apparatus of the present invention, in addition to speeding up the process of emplaning and deplaning, also offers a greater measure of safety and comfort to passengers than do the portable steps currently in use.

In the drawing:

Fig. 1 is a side elevation of a loading ramp embodying the present invention, the view showing the loading and unloading ramps in elevated position.

Fig. 2 is a top plan view of the structure shown in Fig. 1.

Fig. 3 is a broken vertical section taken on line 3—3 of Fig. 2.

Fig. 4 is a transverse vertical section taken on line 4—4 of Fig. 1.

Fig. 5 is a broken plan view showing the extensible floor arrangement.

The structure of the present invention may include a cab 10, an emplaning ramp 11, a deplaning ramp 12, an upper housing section 13, and a lower housing section 14. The cab is provided with a lower wall 15, side walls 16 which may be provided with windows 17, and an upper wall 18. It is arranged to be raised and lowered by means of a vertical hydraulic ram 21, or other suitable means, which is suitably mounted within an opening 22 in the ground, the level of which is shown at 23. No means for operating the ram are shown in the drawing, although any conventional means may be employed for this purpose.

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The cab is open at its outer end and receives a generally rectangular housing 24 which is slidable inwardly and outwardly of the cab. At its outer end, extendable housing 24 is formed with telescopic or compressible wall sections 25 which permit the edges 26 to closely fit the contour of the fuselage 27 of a plane. These walls may further be provided with intermediate telescopic section 28. Thus, when the plane has been moved to loading position and the cab raised to proper level, as shown in Fig. 1, suitable means (not shown) may be provided for moving the housing 24 outwardly to engagement with the door opening in the side wall of the fuselage, and the telescopic section 28 retains the edges 26 in relatively firm engagement with the side walls of the fuselage to protect passengers from rain, etc.

Housing section 13 has a floor level, indicated at 32, which is higher than the floor level 33 of housing section 14, the latter level being preferably a few feet above the ground level to allow for baggage conveyors underneath. Ramps 11 and 12 are of substantially similar construction and are provided with lower walls 35, upper walls 36, and side walls 37 which may have a number of windows 38 therein.

Referring particularly to lower ramp 12 which is shown in some detail in Fig. 3, it will be noted that upper wall 36 has a forward extension 42 which projects inwardly of upper wall 18 of the cab 10. Lower wall 35 is pivotally secured, as at 43, to the lower wall 15 of the cab. Thus, as the cab is lowered the forward extension 42 projects further inwardly of the cab, and conversely, when the cab is raised, it moves outwardly. At its opposite end, lower ramp 12 is pivotally connected as at 45 with an extensible floor section 46 composed of a plurality of spaced, longitudinally-disposed spaced members which are interposed between the fixed, spaced floor members 47 secured on the lower wall 48 of such section. The upper wall 36 likewise has an inner extension 49 which projects inwardly of the upper wall 50 of housing section 14.

As the cab is raised and lowered, there will, of course, be an appreciable amount of outward and inward movement of the lower wall 35 of ramp 12. The same is true of ramp 11. Suitable control means are indicated at 53 within the cab for

raising and lowering the ram. This arrangement permits of safer handling than would be the case otherwise.

The upper wall 36 of one of the ramps may be provided with a conduit 54 within which may be positioned wires for telephone and other utilities leading to the plane, and an air-conditioning conduit for the plane may also be positioned there.

Although not illustrated in the drawing, the extension housing for the cab may be provided with the same type of extensible flooring as shown at 46—47 at the opposite ends of the ramps.

It will be appreciated from the foregoing that a most convenient arrangement for the emplaning and deplaning of passengers has been provided. By the two-level housing at the inner ends of the ramps both classes of passengers always walk down an inclined surface, they are always protected from the elements, and the time required for passenger loading is greatly decreased.

While one form or embodiment of the invention has been shown and described herein for illustrative purposes, and the construction and arrangement incidental to a specific application detail, it is to be understood that the invention is limited neither to the mere details or relative arrangement of parts, nor to its specific embodiment shown herein, but that extensive deviations from the illustrated form or embodiment of the invention may be made without departing from the principles thereof.

What we claim is:

1. An aircraft loading apparatus provided with plural ramps arranged in side-by-side relationship, one for emplaning and another for deplaning, each of such ramps including a lower wall, an upper wall, and side walls, a cab disposed at the outer ends of the ramps, means for raising such cab to an adjusted, fixed position, a slidable extension housing at the outer end of such cab, the outer terminals of the lower walls of the ramps being pivotally connected with the inner end of the cab, a housing having plural levels and openings on such levels receiving the inner terminals of the ramps, an extensible floor section comprising plural spaced floor members fixed to the housing floor and plural spaced floor members disposed between the fixed members in sliding relation thereto, and pivotal means securing the sliding floor members to the inner terminals of the ramps.

2. An aircraft loading apparatus provided with plural ramps arranged in side-by-side relationship, one for emplaning and another for deplaning, each of such ramps including a lower wall, an upper wall, and side walls, a cab disposed at the outer ends of the ramps, a vertically movable

support for raising such cab from ground level and power means for raising the support, a slidable extension housing at the outer end of such cab, the outer terminals of the walls of such housing being yieldable to enable its outer edges to conform to the contour of a plane fuselage when the housing is moved into engagement therewith, the outer terminals of the lower walls of the ramps being connected with the inner end of the cab, a housing having plural levels and openings on such levels receiving the inner terminals of the ramps, an extensible floor section comprising plural spaced floor members fixed to the housing floor and plural spaced floor members disposed between the fixed members in sliding relation thereto, and pivotal means securing the sliding floor members to the inner terminals of the ramps.

3. An aircraft loading apparatus provided with plural ramps arranged in side-by-side relationship, one for emplaning and another for deplaning, each of such ramps including a lower wall, an upper wall, and side walls, a cab disposed at the outer ends of the ramps, means comprising a vertical hydraulic ram for raising such cab from ground level and for lowering such cab, a slidable extension housing at the outer end of such cab, the outer terminals of the walls of such housing being yieldable to enable its outer edges to conform to the contour of a plane fuselage when the housing is moved into engagement therewith, the outer terminals of the lower walls of the ramps being pivotally connected with the inner end of the cab, a housing having plural levels and openings on such levels receiving the inner terminals of the ramps, an extensible floor section comprising plural, spaced floor members fixed to the housing floor and plural spaced floor members disposed between the fixed members in free sliding relation thereto, and pivotal means securing the sliding floor members to the inner terminals of the ramps.

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