

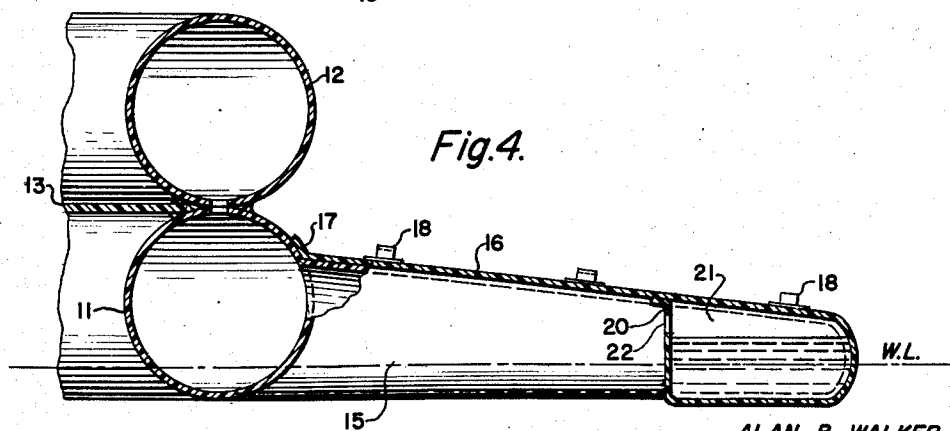
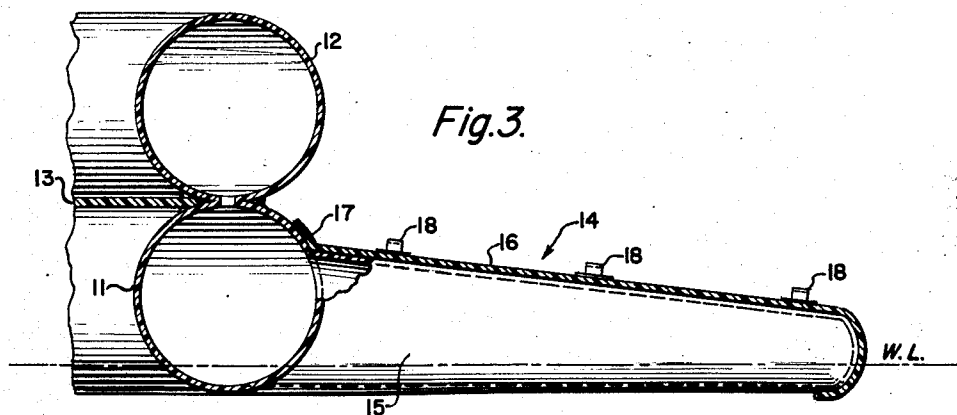
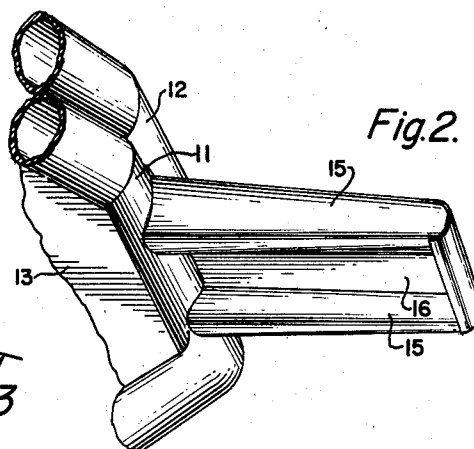
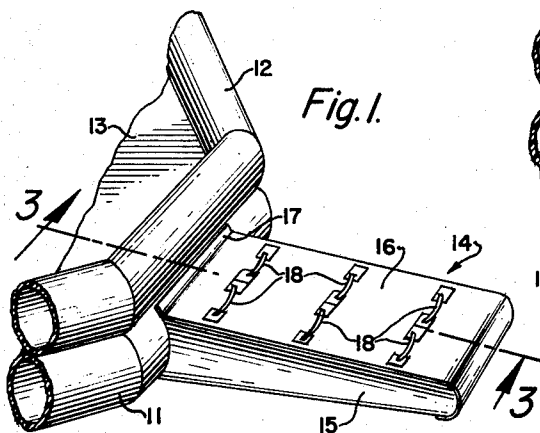
Dec. 1, 1959

A. B. WALKER

2,914,779

BOARDING RAMP

Filed Dec. 9, 1955



ALAN B. WALKER,
INVENTOR.

BY *John H. T. Wallace*

1

2,914,779

BOARDING RAMP

Alan B. Walker, Bound Brook, N.J., assignor to The Garrett Corporation, Los Angeles, Calif., a corporation of California

Application December 9, 1955, Serial No. 552,014

6 Claims. (Cl. 9—11)

This invention relates to boarding ramps, and is directed in particular to a boarding ramp of the type that is adapted to facilitate the boarding of a life raft from the water.

Aircraft of the various military and naval air rescue services, and commercial aircraft which operate over large bodies of water, carry life rafts of the inflatable type which, when tossed from a plane, are automatically inflated so that they may be boarded from the water by survivors of abandoned aircraft or ships and occupied pending ultimate rescue. These inflatable life rafts usually are constructed with two superposed inflatable main buoyancy tubes around their periphery, and the boarding ramp of the present invention is described, by way of example, as attached to such a life raft, but it is to be understood that its use is not limited thereto. The boarding ramp of the present invention may, for example, be used on an inflatable life raft having a single inflatable buoyancy tube, or on other type of inflatable life rafts well known in the art.

For survivors in the water to board a life raft of the above described type, it is necessary to climb over the side of the raft. In a heavy sea, or if the survivors are physically incapacitated or very tired, this may be exceedingly difficult or impossible to do. Numerous means that have been used to facilitate the boarding of the life raft have proven to be inadequate and undesirable. On some of the rafts, for example, a rope ladder was provided to facilitate the boarding of the raft. But when the ladder was mounted, it tended to swing underneath the raft and become unusable.

On other life rafts of the above type, an inflatable slab or pad composed of a first-ply and a second-ply of airtight fabric joined by internal tie cords was attached to the lower tube of the life raft to provide support for a person boarding the raft. This type of boarding ramp lacked rigidity and when the weight of the body was placed on the edge of the inflated pad, that edge was forced beneath the surface of the water and the pad became an inclined ramp to which a person could cling, but which was useless for the purpose of providing support for climbing onto the raft.

When the above described pad was utilized on a life raft having two superposed inflatable buoyancy tubes, the pad was attached to the lower tube and the part of the upper tube above the pad was arranged for separate inflation so that it could be inflated after the persons in the water had been helped aboard the raft. Providing a depressed gunwale section by deflating or not inflating a portion of the tube is undesirable, as it requires the provision of bulkheads within the tube, and is further undesirable since it decreases the rigidity of the raft.

It is an object of the present invention to provide a boarding ramp for an inflatable life raft that overcomes the foregoing and other disadvantages of the prior art.

It is a further object of the invention to provide a boarding ramp that will aid and greatly facilitate the

2

boarding of a life raft by providing a substantially rigid ramp onto which a survivor may crawl.

It is a still further object of the invention to provide a boarding ramp of the inflatable type that is attached to the life raft by an inflatable supporting structure having sufficient strength and buoyancy to maintain the ramp substantially rigid and substantially at water level when boarded from the water.

It is another object of the invention to provide an inflatable boarding ramp of the above described type, the supporting structure of which is inflated automatically with the life raft.

It is still another object of the invention to provide an inflatable boarding ramp of the above described type having a water pocket at its outer extremity that functions to provide stability to the life raft.

Other and further objects of the present invention will become apparent from the disclosures in the following detailed specification, appended claims, and accompanying drawings, wherein:

Fig. 1 is a perspective view showing the top side of a ramp embodying the invention,

Fig. 2 is a perspective view showing the under side of the ramp shown in Fig. 1,

Fig. 3 is an enlarged sectional view taken along line 3—3 of Fig. 1, part being broken away, and

Fig. 4 is a sectional view similar to Fig. 3 showing a modified form of the invention.

Referring to the drawings, there is shown in Fig. 1 a portion of a life raft of a type well known in the art comprising a lower inflatable buoyant tube 11 and a superposed upper inflatable buoyant tube 12 having a fabric floor or deck 13 secured therebetween. The tubes 11 and 12 preferably, though not necessarily, may be formed of a plurality of separate sections joined together to form a continuous unitary member encircling the occupant-receiving space defined by the floor 13. A boarding ramp, shown generally at 14, is provided to facilitate boarding the life raft from the water. The boarding ramp has a supporting structure comprising a pair of spaced inflatable structural beams 15 attached at one end to, and communicating with, the lower inflatable buoyant tube 11. A deck member 16, of impervious fabric or other similar material, is secured to the beams 15 from the connection 17 of the fabric with the tube 11 along the upper sides of the beams and is carried around the free outboard ends thereof for a short distance on the underside.

The raft and the attached structural beams 15 are adapted to be automatically inflated by the usual means (not shown) when the raft is launched from the plane. The beams 15 rest on the water as shown in Fig. 3 and the combined strength and buoyancy of the beams are sufficient to maintain the ramp 14 substantially rigid and maintain the upper surface of the ramp at the free end of the beams substantially at water level while being boarded. Additional buoyancy may be supplied by the air entrapped between the deck member 16 and the water.

Handles 18 are attached at intervals along the length of the upper surface of the deck member 16 to aid survivors to pull themselves onto the ramp. These handles greatly facilitate the boarding of the life raft by survivors who are in a state of semi-exhaustion or who are injured.

The rigidity, and the substantially horizontal position of the ramp will permit survivors to rest at any stage of the process of boarding. When the survivor reaches the side of the life raft, the ramp will provide support for climbing over it. This eliminates the need for bulkheading the raft tube to provide a deflatable section.

A modified type of boarding ramp is shown in Fig. 4,

3

This ramp is identical in structure to the ramp shown in Figs. 1 to 3, except that the deck member 16 is returned a further distance on the underside of the beams 15, and the end 20 thereof is bent up and secured to form a water ballast pocket 21. Ports 22 are provided for entry of water into the pocket 21.

When the ramp is boarded from the water the free end of the beams 15 will yield slightly so that the upper surface of the deck member will be substantially at water level. When the ramp is in this position the ports 22 will be below the normal or average water line and water will flow through the ports 22 into the water ballast pocket 21. When the ramp is again unoccupied it will assume the position shown in Fig. 4 of the drawing. The ballast or stabilizing pocket, located at the ends of the rigid boarding ramp, will cause the ramp to function in the manner of an outrigger and will provide a large stabilizing moment. The ports 22 are intentionally located above the normal water line shown in Fig. 4 when the boarding ramp is unoccupied so that a larger quantity of water will be maintained in the pocket 21. Thus, this boarding ramp, while functioning to facilitate entry onto the life raft in the manner described above, additionally functions to provide stability to the entire raft.

I claim:

1. A boarding ramp in combination with an inflatable life raft having inflatable buoyant means encircling an occupant-receiving space, said ramp comprising, an inflatable supporting structure having a pair of spaced inflatable structural beams attached at one end to, and communicating with, the inflatable buoyant means, said beams having sufficient rigidity and buoyancy when inflated to maintain the free end of the ramp substantially at water level when the ramp is boarded from the water, and a deck member secured to the spaced inflatable structural beams along the entire upper side, around the free outboard ends thereof, and for a short distance on the underside thereof to form an air entrapment chamber between the deck member and the water.

2. A boarding ramp in combination with an inflatable life raft having inflatable buoyant means encircling an occupant-receiving space, said ramp including a deck member of impervious material, an inflatable supporting structure for said deck member comprising a pair of spaced inflatable structural beams attached at one end to, and communicating with, the inflatable buoyant means, said beams having sufficient rigidity and buoyancy when inflated to maintain the free end of the ramp substantially at water level when the ramp is boarded from the water, and a water ballast pocket at the outer ends of the beams to cause the ramp to function as an outrigger and provide stability to the life raft.

3. A boarding ramp in combination with an inflatable life raft having inflatable buoyant means encircling an occupant-receiving space, said ramp comprising, an inflatable supporting structure having a pair of spaced inflatable structural beams attached at one end to, and communicating with, the inflatable buoyant means, said beams having sufficient rigidity and buoyancy when inflated to maintain the free end of the ramp substantially at water level when the ramp is boarded from the water, and a deck member secured to the spaced inflatable structural beams along the entire upper side, around the free outboard ends thereof, and for a distance on the underside, the end of the deck member on the underside of the ramp being bent up and secured to form a water

4

ballast pocket at the outer ends of the beams to cause the ramp to function as an outrigger and provide stability to the life raft, and access means located above the normal water line when the boarding ramp is unoccupied for admitting water to said pocket.

4. A boarding ramp in combination with an inflatable life raft having inflatable buoyant means encircling an occupant-receiving space, said ramp including a deck member of impervious material, an inflatable supporting structure for said deck member comprising a pair of spaced inflatable structural beams attached at one end to, and communicating with, the inflatable buoyant means, said beams having sufficient rigidity and buoyancy when inflated to maintain the free end of the ramp substantially at water level when the ramp is boarded from the water, a water ballast pocket on the underside of said deck at the outer ends of the beams to cause the ramp to function as an outrigger, and access means for admitting water thereto.

5. A boarding ramp in combination with an inflatable life raft having inflatable buoyant means encircling and defining in the inflated state a generally upstanding outer side wall at the perimeter of an occupant-receiving space, said ramp comprising a plurality of inflatable structural beams attached at one end at horizontally spaced locations to and communicating with the inflatable buoyant means, said beams engaging said outer side wall of said buoyant means to extend in the inflated state outwardly substantially between the horizontal planes defining the upper and lower limits of said upstanding side wall and having sufficient rigidity and buoyancy when inflated to maintain the free end of the ramp substantially at water level when the ramp is boarded from the water, and a deck member secured on the inflatable structural beams.

6. A boarding ramp in combination with an inflatable life raft having inflatable buoyant means encircling and defining in the inflated state a generally upstanding outer side wall at the perimeter of an occupant-receiving space, said ramp comprising an inflatable supporting structure having a pair of spaced inflatable structural beams attached at one end at horizontally spaced locations to and communicating with the inflatable buoyant means, said beams engaging said outer side wall of said buoyant means to extend in the inflated state outwardly substantially between the horizontal planes defining the upper and lower limits of said upstanding side wall and having sufficient rigidity and buoyancy when inflated to maintain the free end of the ramp substantially rigid at water level when boarded from the water, and a deck member comprising a sheet of fabric secured to the spaced inflatable structural beams.

References Cited in the file of this patent

UNITED STATES PATENTS

2,722,697	Wilkinson	Nov. 8, 1955
2,765,131	Boyle	Oct. 2, 1956

FOREIGN PATENTS

634,271	Great Britain	Mar. 15, 1950
740,709	Great Britain	Nov. 16, 1955
1,057,573	France	Oct. 28, 1953

OTHER REFERENCES

The Motor Ship, page 104a, December 1955, published in Great Britain, 9/11.1.