Feb. 8, 1938. F. G. CREED 2,107,886

FLOATING STATION

Filed March 14, 1935

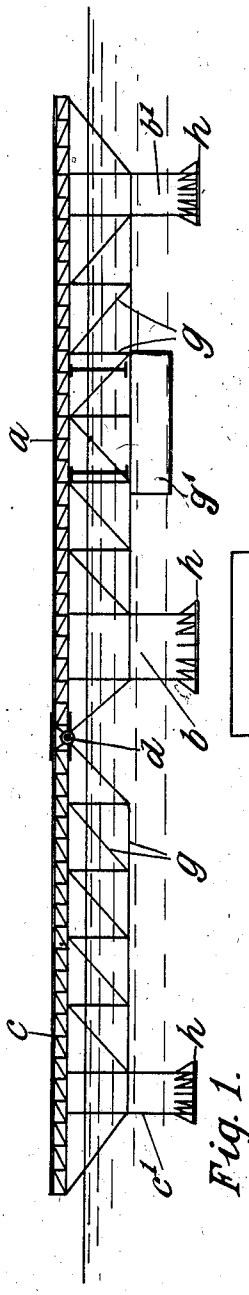


Fig. 1.

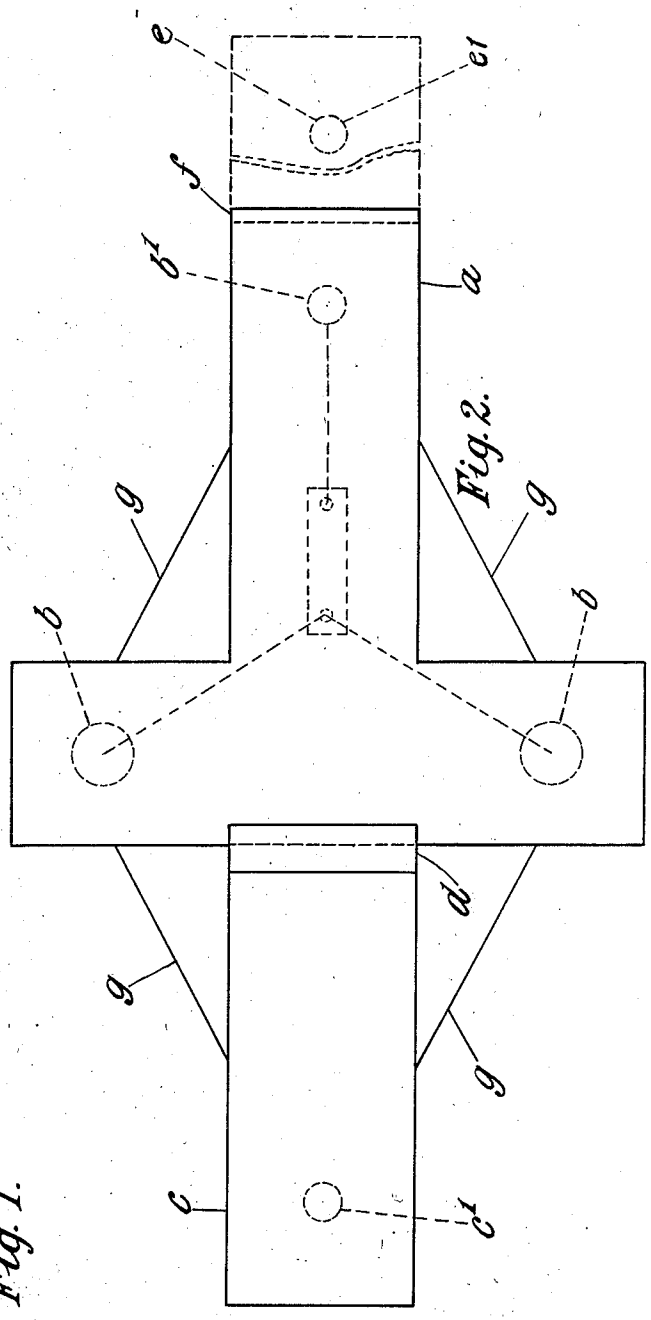


Fig. 2.

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FLOATING STATION

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3 Claims. (Cl. 114—43.5)

In the specification of British Letters Patent No. 142,524, granted to me, is described an anchored floating structure adapted to serve the various purposes of a cable relay station, a wireless station, a landing stage for aircraft, and a fueling station for sea and aircraft, and equipped with all the machinery, apparatus and material necessary for giving help and information to ships and aircraft.

This structure is shown as a very large platform supported above wave action by three cylindrical floats, disposed triangularly, so as to give maximum stability, sunk well below the surface of the water; and having their axes normally parallel with the surface and with each other. The structure is shown moored by a long cable to a large buoy, which in turn is anchored to the bed of the sea by suitable cables. The telegraph cable is cut and the two ends brought first to the buoy and thence to the cable station on the ship. It is stated that the floats might alternatively be more or less spherical in form, or the platform might be supported by a single spherical float. The floats are provided with sea-anchors, in the form of discs, sunk deep in the water, so as to resist vertical movement due to wave-action on the surface.

Now the present invention has for its object the improvement of such floating stations so as to render them more stable, more rigid and strong, more convenient for the various purposes which they are to serve, and more convenient and less costly to construct, launch and to maintain.

According to this invention, the structure comprises a deck, platform or the like carried by vertical cylindrical floats of uniform cross-section throughout arranged in the form of a triangle, means being provided for enabling the structure to float in water. This invention also comprises a composite structure consisting of the said structure together with extensions suitably attached thereto.

In one construction according to this invention the deck or landing platform may be made in the form of a T, or in the form of an isosceles triangle having rounded or square corners and broadened at the apex, and having also a plane upper surface and suitably supported and stiffened by girders, struts and stays underneath. This deck is supported at a suitable distance above the surface of the sea, and parallel therewith, by three cylindrical floats of uniform cross-section throughout having vertical axes, disposed near the three corners of the deck, rigidly attached thereto, and extending downwards into the water to such a depth that at least two-thirds of their length, or sufficient to give stability, will remain below the trough of the largest wave.

In the accompanying drawing, which is diagrammatic and is given by way of example only,

Figure 1 is a side elevation, and

Figure 2 is a plan of a composite structure according to this invention.

In the drawing, *a* is the platform which is supported at its base on two cylinders *b* and at its tip or apex on a single cylinder b^1. This construction constitutes a complete unit, which lends itself with ease to extensions in various directions.

Examples of two extensions are illustrated in the drawing, that at the left hand end, shown at *c*, being supported on a cylinder c^1 and hinged at *d* to the main platform, while that at the right hand end, shown at *e*, is supported on a cylinder e^1 and is hinged at *f* to the main platform. Either or both of these extensions may be employed in conjunction with the main platform *a*.

It will be seen that the extension *c* at the left hand end, together with the base of the main platform *a*, is in effect a T-platform, supported at the points of a triangle, the main cylinders *b* being common to the main platform *a* and to the extension *c*.

In the case of the extension *e*, the cylinder b^1 is common to the same and to the main platform *a*, so that here again these parts are in effect together supported at the points of a triangle of which the base contains the main cylinders *b*. The two parts of the structure thus arranged hinged together and supported will float freely with the minimum of relative movement and strain and the maximum of stability.

An extended platform, as shown in the drawing, is particularly convenient for the landing and taking-off of aircraft.

It will be understood that the main platform may be extended in various ways, enabling the triangular arrangement of supports to be retained. For example, an extension of T-shape or other suitable shape might be hinged along a line joining the cylinders *b* and b^1. Again, one of the cylinders might be used to support one end of an extension, of which the other end would be supported on two cylinders so as to complete the triangular arrangement of supports.

In another arrangement, the extension *c* may be replaced by a T-extension of which the head

portion lies along and is hinged to the head of the main platform *a*, the outer end of the extension being supported on a single pillar. The T-shaped members may be replaced by triangular-shaped members, in which case the composite platform would be diamond-shaped.

When an extension is made to the main deck, the diameter and strength of the cylinders which take the added weight will be suitably increased. The extensions will have their own independent system of girders, struts and stays, and one or more of them may have a globular or cylindrical buoyancy body supporting, or helping to support its central portion.

Further additions may, of course, be added to the extensions, thus providing a composite structure of any desired shape and size. In some cases the main platform, either by itself or with an extension or extensions, may be made in the form of an isosceles triangle.

All the supporting cylinders may be formed with a number of water and air-tight compartments, and may contain compartments for fuel, stores, machinery, living and sleeping quarters and so forth. Or deck houses may be provided for any or all of these purposes. The details of construction may be variously arranged and the shape of the structure modified without departing from the spirit of the invention. Steel or other suitable material may be employed throughout the structure.

The floating platform can be built in situ by floating the bases of the cylinders, suitably connected together, into position and then erecting the remaining portions of the cylinders and the superstructure upon them, thereby effecting economy in cost of construction.

The length of the cylinders will conveniently be about 200 feet, in which case the submerged portion may be 150 feet more or less. As the pressure of the water at that depth is considerable, the cylinders will be suitably strengthened within, and the bottom ends may be cupped or concave. The diameter of each cylinder will depend upon the weight of that portion of the deck which it has to support and the machinery, stores and so forth which it may contain. Assuming that each cylinder has to support a total weight of about 12,000 tons, its diameter may be 60 to 70 feet. The axes of the two cylinders which support the base or broad end of the deck may be set about 500 feet apart and the axis of the cylinder which supports the apex or narrow end of the deck may be set about 700 feet from each of the other two axes. The deck may extend about 150 feet beyond each axis. The deck would thus measure about 800 feet over all along the base, and about 1,000 feet over all along the centre line. These measurements are given only by way of example and may be greatly modified in practice.

The cylinders are attached to the deck and held rigidly in relation thereto and to each other by suitable girders, struts and stays indicated at *g*. A part of the weight of the central portion of the deck may be supported by a globular or cylindrical buoyancy body *g'* built into the structure at a depth of, say, 100 feet or more below the surface, at a point centrally of three supporting cylinders, and having a strong tube or pillar rising from it to the centre of the deck. Around the lower end of each supporting cylinder there may be arranged one or more broad flat rings or flanges *h* adapted to take hold of the water and minimize vertical movement caused by the waves. That portion of the cylinder which extends above the surface of the sea may be reduced in diameter, so as to be less affected by the action of the waves, and may be flattened or streamlined in a fore-and-aft sense, so as to offer less resistance to the wind. The exposed portion of the supporting framework may be similarly streamlined.

I claim:—

1. A floating structure for landing airplanes at sea comprising three cylindrical floats triangularly disposed and a substantially rigid platform carried by said floats, each of said floats being disposed with its axis substantially vertical and extending from a point above the water to such depth that its bottom surface lies at such a depth as to be in substantially placid deep water in all conditions of the sea, each of said floats being of uniform cross section over its entire immersed depth and said three floats constituting the variable buoyancy support of said platform.

2. A structure in accordance with claim 1 further comprising an auxiliary platform, hinge means for attaching said auxiliary platform to said platform first mentioned and an auxiliary float attached to said auxiliary platform, said auxiliary platform being buoyantly supported by triangularly disposed floats of which at least one is constituted by one of said first mentioned floats and at least one other is constituted by said auxiliary float.

3. A floating structure according to claim 1 wherein an additional buoyant body is positioned at all times below the surface of the water and is connected to said platform intermediate said three cylindrical floats.

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