Jan. 11, 1944. A. J. HIGGINS 2,339,014

PONTOON BOAT

Filed Nov. 3, 1941 2 Sheets-Sheet 1

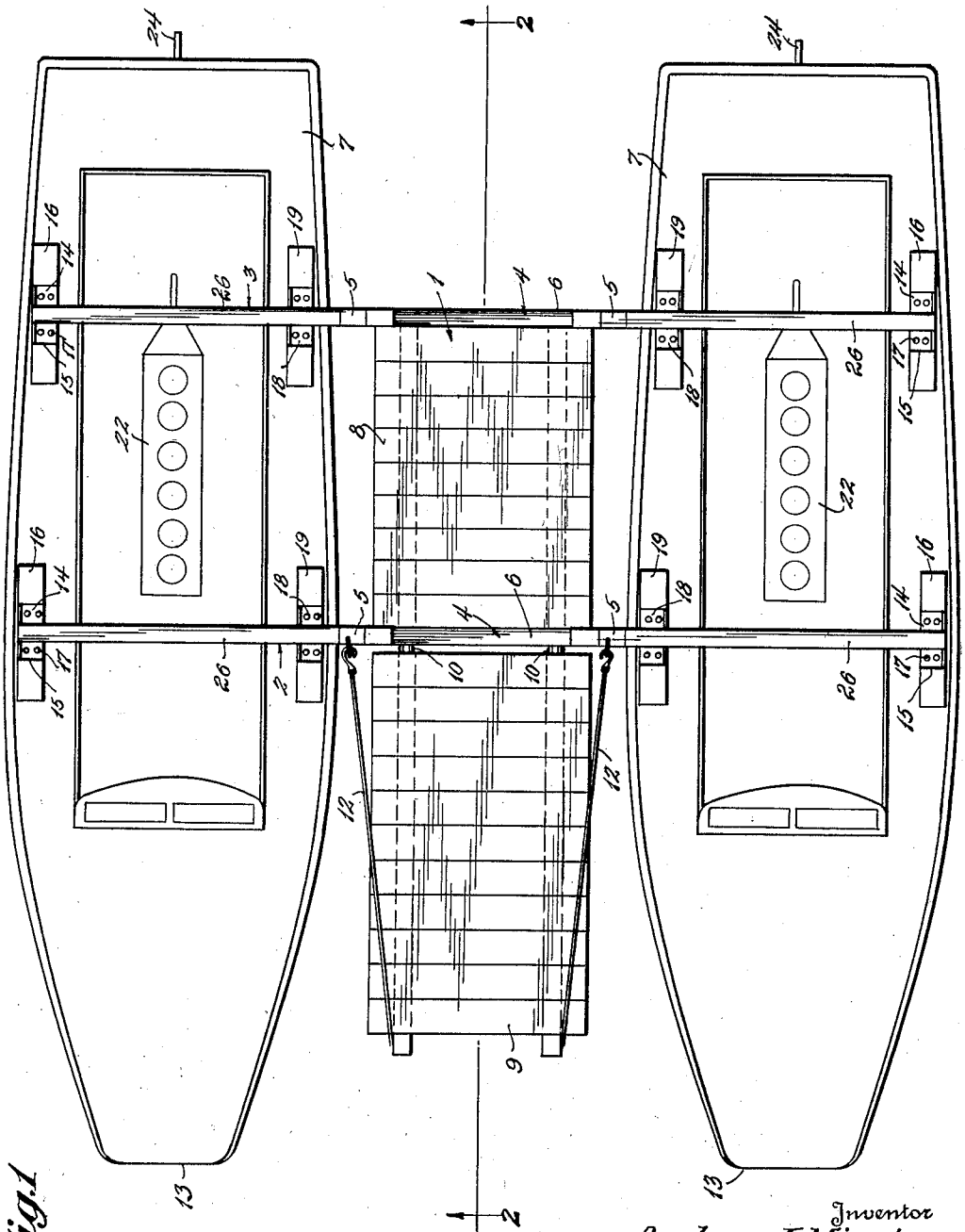


Fig. 1

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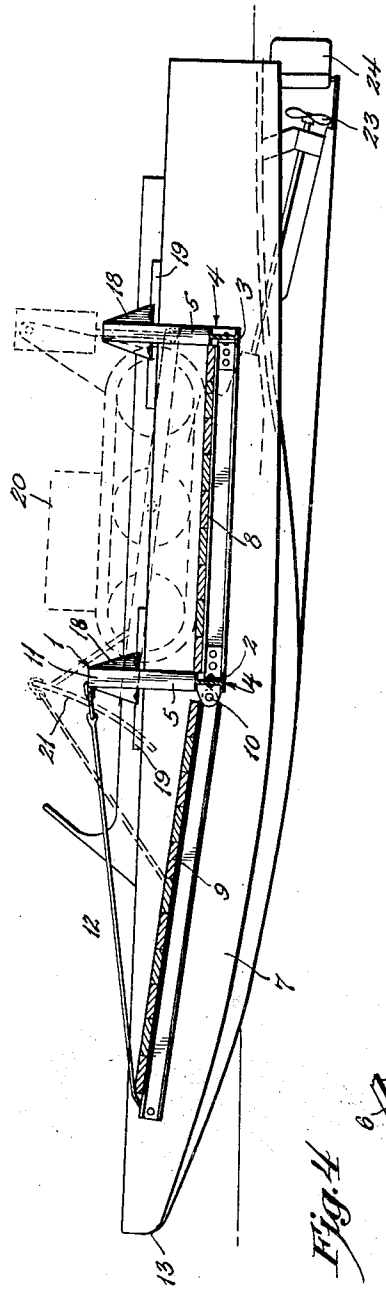


Fig. 2

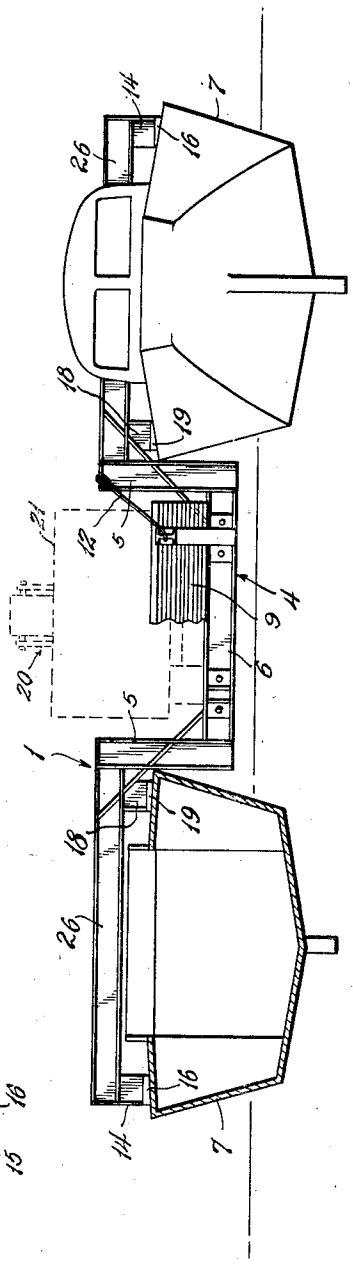


Fig. 3

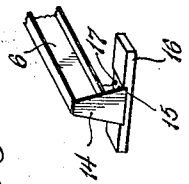


Fig. 4

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UNITED STATES PATENT OFFICE

2,339,014

PONTOON BOAT

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Application November 3, 1941, Serial No. 417,689

4 Claims. (Cl. 114—61)

This invention relates to a shallow draft pontoon boat, particularly designed for the transportation of mechanized land vehicular equipment such as tanks, field pieces, bulldozers, etc., and the landing of the same on the beach without the benefit of wharves or docks.

One of the objects of the invention is the provision of a platform rigidly supported at a stable height with respect to water level, between two pontoons of a hull type having the beach landing characteristics of my "Eureka" boat described and claimed in my Patent No. 2,144,111, granted January 17, 1939, and having a hinged ramp at one end extending to a point substantially abreast the bows of the pontoons, the hinge axis being in the region of maximum beam displacement of the pontoons so that the landing level of the pontoons is not substantially disturbed by the shifting of the weight of the transported apparatus as the latter travels from the platform down the ramp in the course of unloading.

Another object of the invention, in apparatus of the type described, is the provision of a power plant and steering means on one or both of the pontoons.

A further object of the invention is to provide a pontoon boat having the platform and hinged ramp positioned between the pontoons as described, in which the ramp may be carried at an oblique angle with respect to water level, forming an auxiliary bow for diverting the bow waves of both pontoons beneath the platform and guarding the apparatus in transport from splash.

Still another object of the invention is the provision of what may be termed a cargo unit comprising fore and aft spaced transverse parallel frame beams, each having a downwardly extended intermediate portion forming a flat bottom U-shaped cradle with outwardly extended end portions from the top of said U-shaped portions, a platform bridging the space between said beams supported upon the bottom members of said U-shaped portions and having a ramp hingedly secured to one end, the whole being adapted to be set down upon a pair of parallel spaced pontoons with the extending end portions of said beams resting upon suitably positioned receiving plates fast to the decks of said pontoons and to which said cargo unit may be rigidly secured.

Other objects of the invention will appear as the following description of a preferred and practical embodiment thereof proceeds.

In the drawings, throughout the several figures of which the same characters of reference have been employed to designate identical parts:

Figure 1 is a plan view of a pontoon boat embodying the principles of the present invention;

Figure 2 is a longitudinal vertical section taken along the line 2—2 of Figure 1;

Figure 3 is a front view partly in elevation and partly in section;

Figure 4 is a perspective view illustrating the details of construction of the receiving plate and the cooperating ends of the beams of the cargo unit.

Referring now in detail to the several figures, the numeral 1 represents in general the cargo unit which comprises respectively the fore and aft beams 2 and 3. Each of these beams is of substantially similar construction. As shown, they are of channeled cross-section each comprising an intermediate U-shaped cradle 4, having the side members 5 and a flat bottom member 6. From the tops of the side members 5 the end portions 26 extend outwardly, being of sufficient length to overlie substantially the entire width of the supporting pontoons 7. The several members of said beams are unitarily joined in any suitable manner as by rivets or welding.

A platform 8 bridges the space between the beams 1 and 2, being secured to the flat bottom members 6 of the cradles 4, the floor of said platform being substantially at the level of the tops of the members 6.

The platform is of sufficient width to receive the apparatus which the cargo unit is designed to transport, and the length of the side members 5 is such that when the cargo unit is supported upon the pontoon 7 the platform 6 will be at the optimum level for maximum stability and yet be above the level of the load water line of the pontoons.

A ramp 9 is hingedly supported at 10 at the front end of the platform 8. The length of said ramp is such that its forward end terminates adjacent the bows of the pontoon 7. Suitable posts 11 are erected on the forward beam 2 at opposite sides of the platform 8, said posts affording means to which the cables 12 may be detachably secured, which hold the ramp in its elevated position. Normally, the ramp is carried at an acute angle to the water level, so that it acts as an auxiliary bow between the two pontoons, diverting the bow waves of said pontoons beneath the platform 8 and preventing the seas from washing over the platform 8 and unduly wetting the apparatus carried from said platform. The cables 12 can be unhooked from the

posts 11, permitting the ramp to be lowered upon the beach.

The entire cargo unit, as described, may be set down by a crane upon two similar boats or pontoons especially equipped for the purpose, and from which it may be lifted when the boats are desired for other uses, or may be permanently secured to the boats or pontoons.

In the present exemplary embodiment of the invention, the pontoons or a pair of identical boats of the "Eureka" type covered by my patent aforementioned which are characterized by having a broad and smoothly rounded bow log 13, the curved chines of which gradually merge into a shape of dead rise cross-section in the neighborhood of the forefoot of the hull and which V-shape continues rearwardly throughout the hull of the boat, the rear portion being substantially flat and having a half tunnel 14 above the propeller, which by its suction effect draws unaerated water into the region of the propeller and avoids cavitation resulting from the air film which is entrained under the forefoot of the boat and upon which the boat largely rides and assists in the dissipation of this air film at the chines some slight distance rearwardly of the midship section.

Such a boat hull is extremely efficient and powerful, so that it can successfully be slid up upon a shelving beach in shoal water and permit dry-shod landing without the benefit of wharves or docks, and can just as readily be backed off from such a landing. When the apparatus is equipped with pontoons of this type and landed in the manner described, the ramp 9 can be let down upon the beach and the mechanized equipment landed therefrom. It is preferred to locate the beams 1 and 2 with respect to the pontoons in such a manner that the axis of the hinge connection 10 is in the region of maximum beam displacement of the pontoons so that when the weight of the mechanized apparatus shifts from the platform to the pontoon, the landing level of the pontoons will not be substantially affected. Thus, there is no danger of the pontoon sliding away from the shore or listing in the disembarking of the mechanized equipment. It will be understood to those skilled in the art that the invention is not limited to pontoons of the "Eureka" type, but that any suitable pontoon may be employed.

The ends of the outwardly extending portions 26 of the beams 1 and 2 are provided with suitable supporting bases 14, which fit into recesses 15 formed in the receiving plates 16 which are suitably secured to the outer decks of the pontoons, as shown. Bolts 17, or their equivalent, pass through said bases into said receiving plates and secure the cargo unit to the pontoons. Similar supporting bases 18 are fixed to the under sides of the extended portions 26 adjacent the U-shaped cradles and are received in the plates 19 fast to the adjacent portions of the decks of the pontoons, and being secured thereto.

Figure 2 indicates, in broken lines, a land vehicle 20 of the bulldozer type having a scraper 21 which can be elevated or lowered through the power plant of the vehicle. The ramp cable can be hooked to the scraper, as shown, and elevated or lowered by means of the transported vehicle.

One or both of the pontoons 7 may be provided with a power plant, including the engine 22 and the propeller 23, driven thereby, and one or both may be equipped with a rudder 24 for directing the apparatus. While the ramp cables 12 are illustrated as being operable by hand, it will be obvious to those skilled in the art that they may, of course, be operated by the power plant of the pontoon, if desired.

While I have in the above disclosure described what I believe to be a preferred and practical embodiment of the invention, it will be understood to those skilled in the art that the specific details of construction and arrangement of parts are by way of example and not to be construed as limiting the scope of the invention which is defined in the appended claims.

What I claim as my invention is:

1. Pontoon boat comprising a cargo unit including fore and aft spaced transverse beams each having a dip in the middle, and outwardly extending end portions at a higher level than the base of said dip, a platform supported by said beams, bridging the space therebetween at the bases of said dips, a ramp hingedly mounted at the front end of said platform and extending forwardly therefrom, and pontoons supporting the outwardly extending end portions of said beams and flanking said ramp.

2. Pontoon boat comprising a cargo unit including fore and aft spaced transverse beams each having a dip in the middle, and outwardly extending end portions at a higher level than the base of said dip, a platform supported by said beams, bridging the space therebetween at the bases of said dips, a ramp hingedly mounted at the front end of said platform and extending forwardly therefrom, pontoons supporting the outwardly extending end portions of said beams and flanking said ramp and means for suspending the free end of said ramp.

3. Pontoon boat comprising a cargo unit including fore and aft spaced transverse beams each having a dip in the middle, and outwardly extending end portions at a higher level than the base of said dip, a platform supported by said beams, bridging the space therebetween at the bases of said dips, a ramp hingedly mounted at the front end of said platform and extending forwardly therefrom, and pontoons supporting the outwardly extending end portions of said beams with the hinge axis of said ramp substantially in the region of maximum beam displacement of said pontoons.

4. Pontoon boat comprising a cargo unit including fore and aft spaced transverse beams each having a substantially U-shaped dip in the middle with flat base, and having outwardly extending end portions at a higher level than the base of said dips, a platform supported by said beams bridging the space therebetween at the bases of said dips, a ramp hingedly mounted at the front end of said platform and extending forwardly therefrom, and pontoons at the sides of said platform for supporting said cargo unit, said pontoons including receiving plates for said fore and aft beams, fast to said pontoons, the outwardly extending portions of said beams resting upon said plates and being detachably secured thereto.

ANDREW J. HIGGINS.