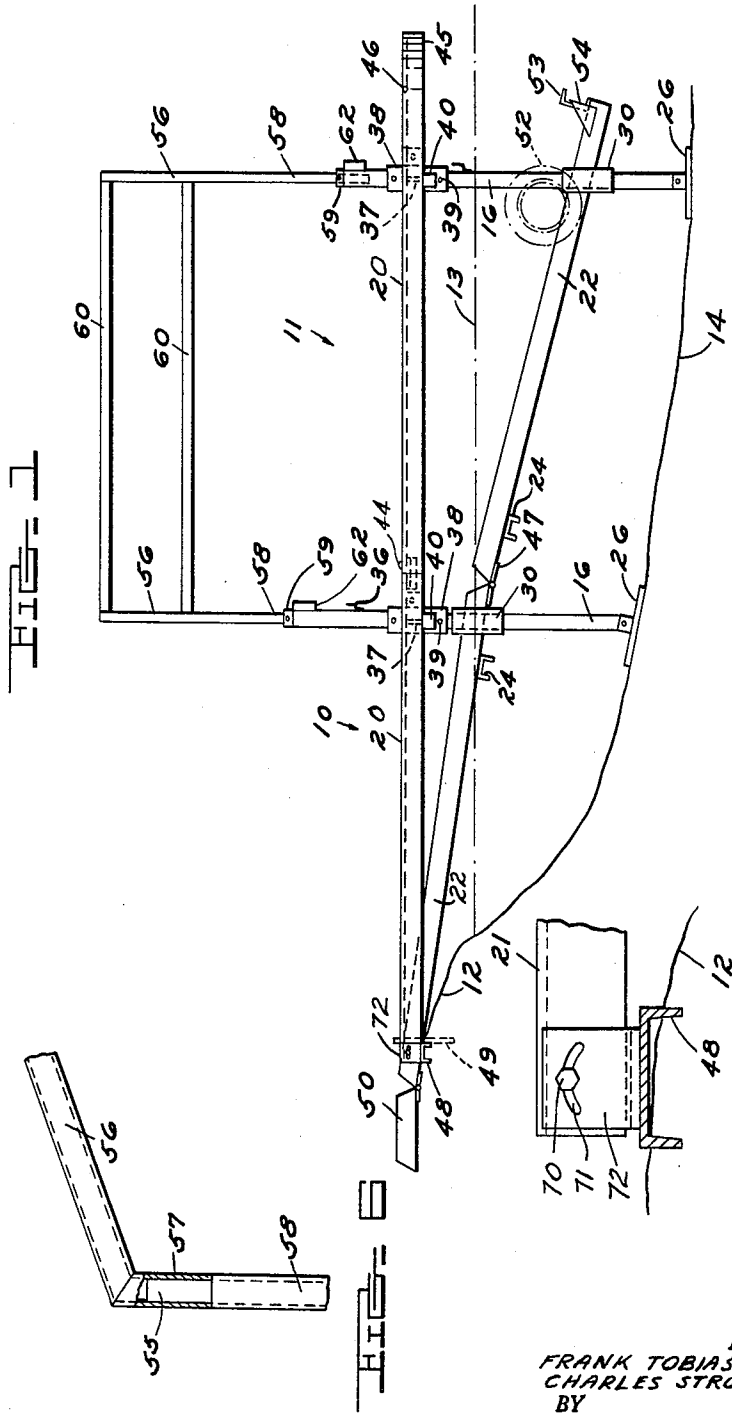
Jan. 22, 1963 F. T. CAHILL ETAL 3,074,241

OFFSHORE INSTALLATION FOR LAUNCHING BOATS

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FIG. 2

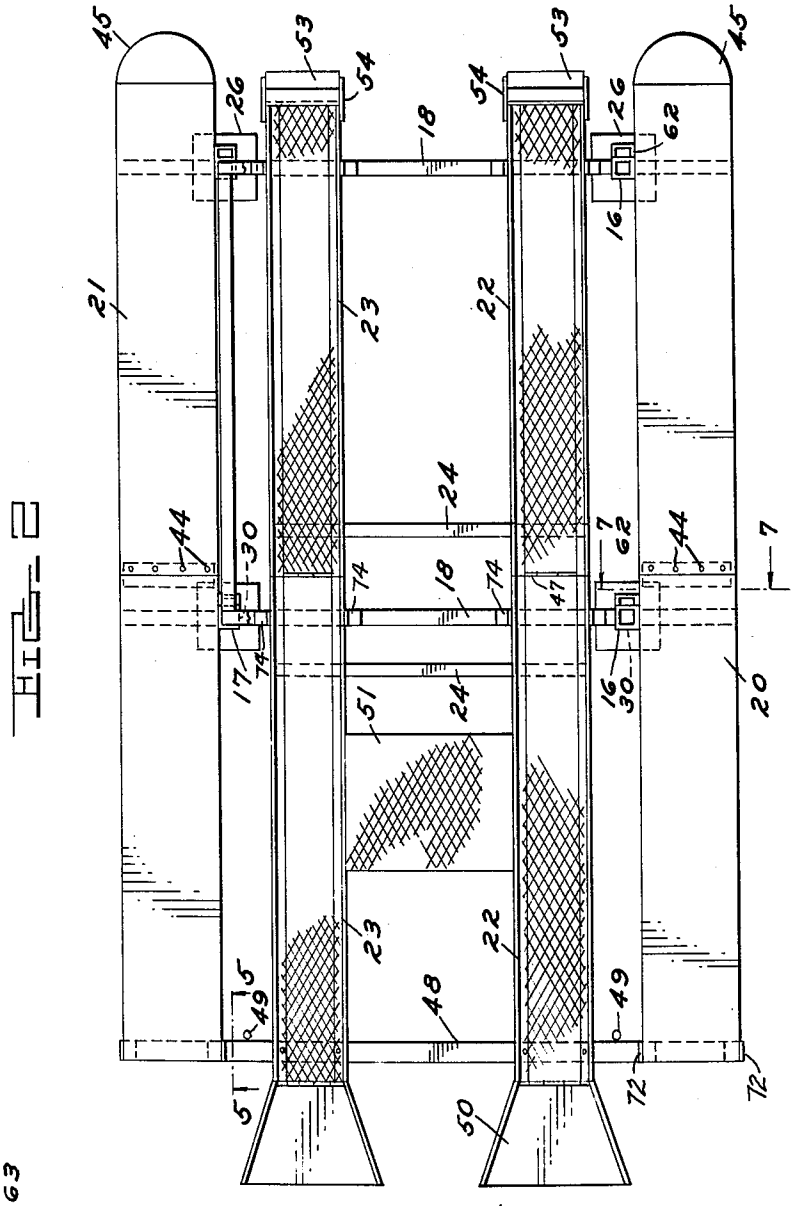
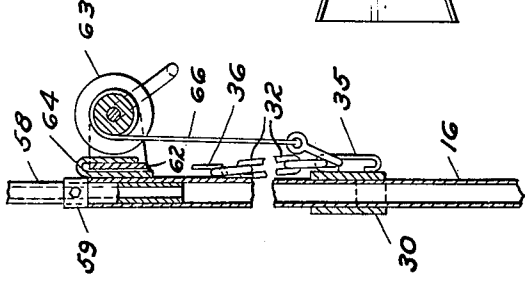


FIG. 4



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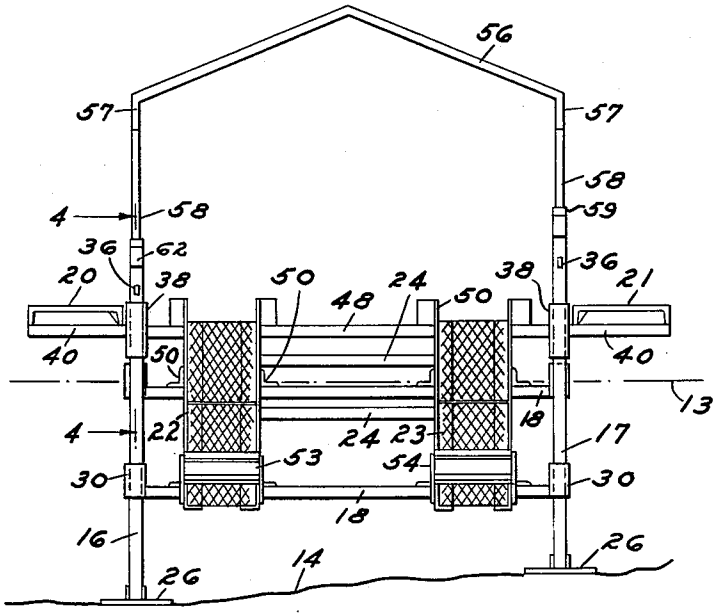


FIG. 3

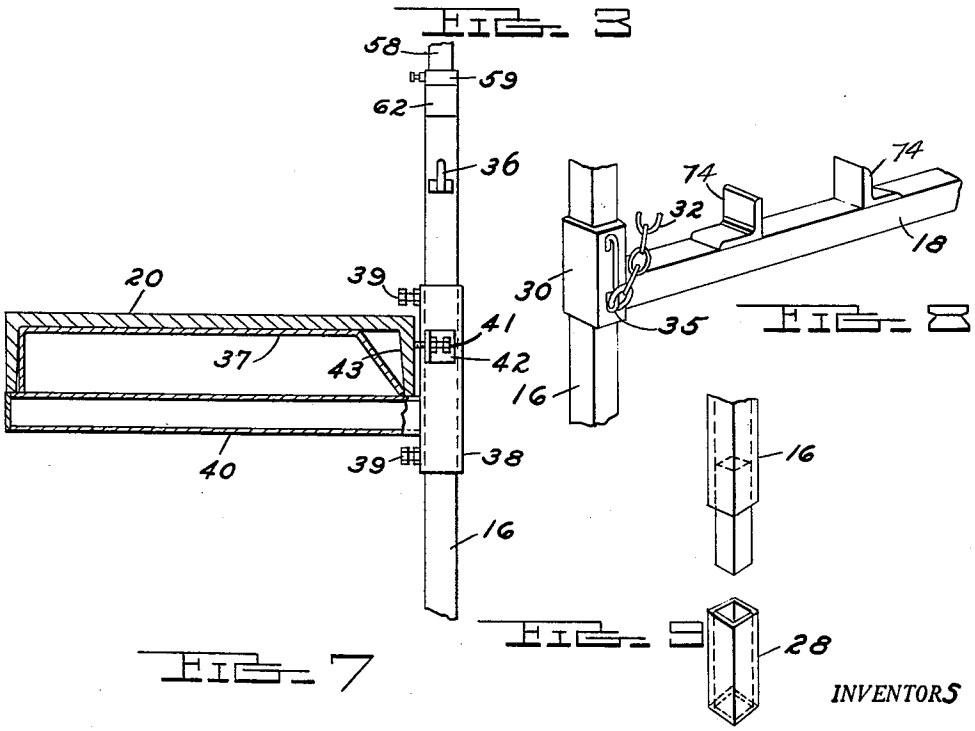


FIG. 8

FIG. 7

FIG. 2

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OFFSHORE INSTALLATION FOR LAUNCHING BOATS

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4 Claims. (Cl. 61—67)

This invention relates to a structure for launching small boats from a wheeled support such as a trailer.

Many owners of small boats have no permanent mooring place but instead keep their boat on a trailer when not in the water and transport it to some place where it can be launched, used, then returned to the trailer until the next outing. The main object of the present invention is to provide a structure which can be installed at places such as public parks and marinas for facilitating the launching of the many small boats which are operated from trailers.

A further object is to provide such a launching structure in which the various structural components are standardized in design for economical manufacture and interrelated in such a way that this standardized structure possesses sufficient flexibility to be installed at practically any location. In other words, the invention aims to provide a structure which will be self compensating for varying water depths and bottom conditions, which can be installed within a range of lengths depending upon that required, which can be adjusted in use to meet changing conditions such as for example, a change in water level, and which can further be adjusted if desired or required to accommodate varying sizes of boats.

In view of these principle objects, the structure of the invention essentially consists of sectional units which can be used in the number required to form a structure suitable for a particular condition of use. Each section includes a pair of extensible posts which have a length sufficient to extend from the water bottom, where they are preferably supported upon a pedestal, to well above the normal water level. Each pair of posts are interconnected by a cross member with this connection being such that each post may be independently adjusted relative to the cross member. Preferably the cross member is provided with a sleeve at each of its ends for slidably engaging the post and forming this adjustable connection. Each section includes a pair of longitudinal members and means for supporting each of these members from one of the posts and this support also provides for independent adjustment of the longitudinal member relative to the length of the post. Preferably, these longitudinal members are formed by dock sections, which, when the structure is assembled, form walkways along each side of the structure. Suitable ramp drive means complete the basic structure of each section. One end of the ramp drive means of the section nearest the shore is supported upon the shore and the adjacent ends of the ramp drive means of all sections, are interconnected by means which permit relative articulation between the ramp drive means of adjacent sections. The ramp drive means of each section is supported upon the cross member of such section.

Preferably, winches are provided, together with means for detachably mounting a winch on each post, and the hoisting element of the winch is connected to the cross member which engages such post. Thus, by operating the winches on a pair of posts, the elevation of the cross member can be adjusted as desired thereby establishing the inclination of the ramp along each section of the structure with any differences in inclination between the ramp drive means of successive sections being permitted by the articulating connection between adjacent ramp sections.

Preferably also, an overhead framework is provided which includes longitudinal members for interconnecting the upper ends of the posts of adjacent sections, and transverse members for interconnecting the upper ends of each pair of posts. This overhead framework serves to add further stability to the structure and also provides a support for a canopy if desired.

Other features and advantages of the construction will appear from the following description of the presently preferred embodiment disclosed in the accompanying drawings which consist of the following views:

FIGURE 1, a side elevation of a launching structure consisting of two units;

FIGURE 2, a plan view of the structure shown in FIGURE 1 but with the superstructure removed;

FIGURE 3, an outer end elevation thereof;

FIGURE 4, an enlarged sectional elevation taken on the line 4—4 of FIG. 3 and showing the installation of a winch;

FIGURE 5, an enlarged sectional elevation taken on the line 5—5 of FIGURE 2;

FIGURE 6, an enlarged end elevation showing a typical connection between a post and the overhead framework;

FIGURE 7, an enlarged sectional elevation taken on the line 7—7 of FIGURE 2 and showing a connection between a longitudinal member or dock section and a supporting post;

FIGURE 8, an enlarged perspective detail showing a connection between a post and a cross member; and

FIGURE 9, an enlarged exploded perspective detail showing the connection between a post and post extension.

Referring to FIGURES 1–3, the structure illustrated consists essentially of two sets of similar structural members which when assembled form a first section 10 and a second section 11, with the first section extending outwardly from the shore 12 of a body of water whose normal level is indicated by the line 13 and whose bottom is indicated by the line 14.

Each section consists of a pair of posts 16 and 17 which are interconnected by a cross member 18; a pair of longitudinal members 20 and 21 in the form of dock sections; and a pair of ramp members 22 and 23 which are interconnected by a cross brace 24. All these basic structural members are included in forming the second section 11 of the structure and would be included in forming any additional sections desired.

Each of the posts 16 and 17 is preferably supported on a suitable pedestal 26 which rests on the bottom 14, and is of a length sufficient to extend upwardly to an elevation well above the water line 13. The length of each post may readily be increased by adding an extension 28 such as shown in FIGURE 9.

The cross member 18 which interconnects each pair of posts 16 and 17 is provided at each of its ends with a tubular sleeve 30 slidably engaging the posts to permit longitudinal adjustment of each post independently of each other post, and thus the cross member 18 can be positioned horizontally regardless of the relative level of the water bottom on which the posts rest. The cross member position is preferably established by a connector element such as the chain 32 (FIG. 4) one end of which is secured to a fitting 35 on the sleeve 30 and a link of which can be engaged with a suitable hook 36 on the post. The hook 36 is located above the level of the water line and dock sections as shown in FIGURE 7.

Each of the channel shaped dock sections 20 and 21 is supported on one of the posts as best shown in FIGURE 7. This connection permits the dock sections to be located longitudinally and transversely of the posts and independently of the position of any of the cross members 18 and consists of a sleeve 38 which may be posi-

tioned along a post as desired and located by set screws 39. An arm 40 is secured to the sleeve 38 and carries a filler member 37 which engages the under surfaces of the channel shaped dock section. A clamping bolt 41 is threaded into a bracket 42 secured to the sleeve 38, and when tightened, engages the inner flange 43 of a dock section to fix it in the position desired. The adjacent ends of successive dock sections are suitably interconnected by bolts 44, and the end or bumper section 45 is secured by a hinge pin 46.

The ramp members 22 and 23, which form the ramp drive means of each section of the structure for supporting the boat carrying conveyance, have their adjacent ends interconnected by a hinge 47 to permit articulation between the ramp members of adjacent sections. For the first section 10 of the structure, the ramp members 22 and 23 are secured to an anchor member 48 which is positioned on the shore by some suitable means, for example the stakes 49. Conventional flared guides 50 are provided for guiding trailer wheels onto the ramps. A deck 51 is mounted between the ramp members 22 and 23 of the first section for convenience in handling the boat on and off its trailer.

The ramp drive means of each section is supported on the cross member 18 of such section for sliding movement of the ramp members relative to the cross member. Transverse location of the ramp members 22 and 23 relative to their supporting cross member 18 is provided by pairs of guides 74 secured to the cross member 18 and between which the ramp members 22 and 23 are positioned. The ramp members 22 and 23 of the outer section 11 are equipped with some form of chock means for preventing the wheels 52 (FIG. 1) of a trailer from falling off the end of the ramp, and in the construction illustrated this chock means consists of a channel 53 secured to the outer end of each of these ramp members by gusset plates 54 (see FIG. 2).

An overhead framework is preferably provided for further stabilizing the assembled sections. This framework simply consists of cross members 56 each of which include vertical portions 57 for engagement with the upper end 55 of each of a pair of post extensions 58 which telescope into the tubular posts 16, 17 a distance determined by the location of a collar 59. Longitudinal members 60 extend between the cross members 56 and serve to interconnect adjacent posts longitudinally of the assembled structure.

When the structure is being erected and each section thereof has been assembled and interconnected to the next section, the cross member 18 between each pair of posts is set at the desired level for defining the proper inclination of the ramp drive means which it supports. In order to simplify this operation each of the posts 16 and 17 is provided with a socket 62 in which a conventional type of winch 63 may be mounted, the winch assembly 63 (FIG. 4) being equipped with a bracket 64 which detachably engages the socket 62. The winch hoisting element or cable 66 is connected to the eye fitting 35 of the cross member sleeve 30. It is to be noted that the winch mounting socket 62 is located at a level above the adjacent dock section 20 or 21 (see FIG. 7) and thus when a winch 63 is mounted on each of a pair of posts 16 and 17, the pair of winches can be operated by persons standing on the dock sections 20 and 21 to raise or lower the cross member 18 to the desired level. When this level has been established the cross member is locked in this position by securing a link of the chain 32 to the hook 36 on each post.

Thus the cross member 18 of each section can be positioned independently and the relative inclination of the ramp drive means can be varied from section to section as shown in FIG. 1. This adjusting movement and positioning of the cross members 18 and ramp sections is accompanied by sliding movement of each ramp section relative to its supporting cross member 18 and by articulation between the ends of adjacent ramp sections at the hinge connections 47. At the first unit 10, movement of the ramp sections results in rocking movement of the anchor member 48 and articulation of the dock sections which are loosely connected thereto by bolts 70 engaging the arcuate slots 71 in the angle brackets 72 secured to the cross member.

In the overall structure each supporting post is supported by the bottom independently of each other supporting post; each dock section or longitudinal member is independently adjustable relative to its supporting post; and each ramp section is independently adjustable relative to a pair of supporting posts. All the major components are standardized in design and dimension for fabrication from conventional structural shapes as shown. The resulting structure is extremely flexible and hence can be adapted to practically all places where a unit of this type can be used. The structure is also relatively portable for removal during an off season.

Other features and advantages will readily be appreciated by those skilled in the art who will also appreciate the fact that modifications may be made from the respective structure illustrated without departing from the spirit of the invention as defined in the following claims.

We claim:

1. An offshore installation for launching a boat mounted on wheels comprising a structure having a first section and at least one other section arranged in end-to-end relation; each of said sections including a pair of spaced vertical support posts mounted offshore, a cross member, adjustable means fixedly connecting said cross member to each of said posts at a desired horizontal level, a pair of horizontal longitudinal members in the form of dock sections disposed perpendicular to said cross member, means connecting each of said longitudinal members to one of said posts, and means providing a vehicle supporting inclined ramp drive disposed perpendicular to said cross member and between said horizontal members, means for supporting one end of the ramp drive of the first section on the shore in line with an onshore vehicle drive surface, hinge means for connecting the adjacent ends of the ramp drive means of successive sections to each other, and means for movably supporting the ramp drive means of each section on the offshore cross member of such section so that the offshore end of the ramp drive is sufficiently below the water level whereby a boat mounted on wheels may be launched by moving said boat down the ramp drive until the boat floats.

2. An offshore installation for launching a boat comprising an offshore structure having a plurality of sections connected in end-to-end relation, each section including a pair of spaced support posts mounted offshore, a cross member and a horizontal longitudinal member in the form of a dock section disposed perpendicular to said cross member, means connecting each post to said cross member for vertical adjustment of said cross member relative to such post, means connecting each longitudinal member to one of said posts for vertical adjustment thereon, vehicle supporting, ramp drive means disposed perpendicular to and movably supported by said cross member, and means for connecting the adjacent ends of the ramp drive means of successive sections for relative articulating movement, said longitudinal members forming docks, said ramp drive means extending outwardly from an onshore drive whereby a boat mounted on wheels may be launched by moving said boat down the ramp.

3. An offshore installation for launching a watercraft, said installation comprising a structure having extensible spaced support posts each having a length sufficient to extend from the water bottom to well above water level, said support posts being arranged at longitudinally spaced intervals in pairs to form two rows of posts, longitudinal members formed by dock sections corresponding in number to the number of posts, said dock sections being ar-

ranged in end-to-end relation to form a walkway extending from the shore along one row of posts, means for connecting said dock section to one of the posts for adjustment longitudinally and transversely of such post whereby said walkway is supported substantially horizontally and above the water level, a cross member extending transversely between each pair of posts and being provided with sleeve means for slidably engaging each of such posts, an inclined vehicle supporting drive ramp secured to the shore at one end in line with an onshore vehicle drive, said ramp extending offshore and below the water level and consisting of a number of sections connected in end-to-end relation by means which permit relative articulation between adjacent sections, the offshore end of each ramp section being movably supported upon one of said cross members, and connector means extending between each post and the cross member engaged therewith, said connector means being operable to adjust each cross member and the ramp section supported thereby relative to the pair of posts engaged by such cross member and to retain such cross member in adjusted position.

4. An offshore installation for launching a watercraft and comprising a knockdown structure including individually extensible support posts each having a length sufficient to extend from the water bottom to well above water level, said support posts being arranged at spaced intervals in pairs to form two rows of posts, a cross member extending transversely between each pair of posts and being provided with sleeve means for slidably engaging each of such posts, means for fixedly securing said sleeve means to said posts, a vehicle supporting drive ramp extending offshore from an onshore drive and adapted to project

below the water and consisting of a number of sections connected in end-to-end relation by means which permit relative articulation between adjacent sections, the offshore end of each ramp section being movably supported upon one of said cross members, winch means detachably connectible to at least certain pairs of said posts above water level, each winch means including a hoisting element, and means for connecting said hoisting element to one end of a cross member.

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