Aug. 31, 1954 W. L. ROMICK 2,687,814

BOAT HANDLING AND STORING APPARATUS

Filed Dec. 20, 1948

2 Sheets-Sheet 1

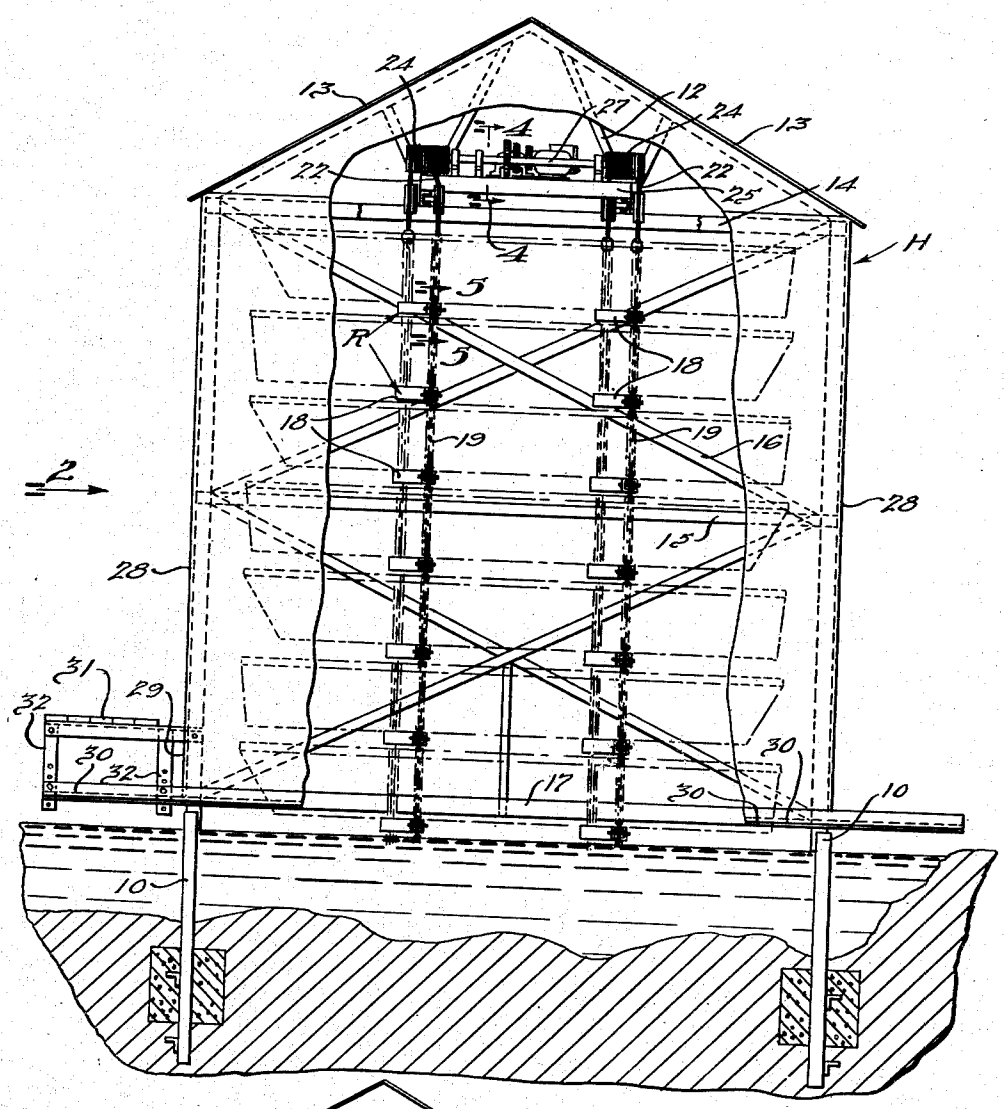


FIG. 1.

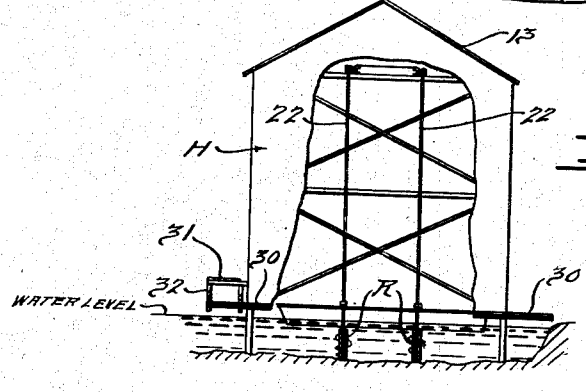


FIG. 3.

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2 Sheets-Sheet 2

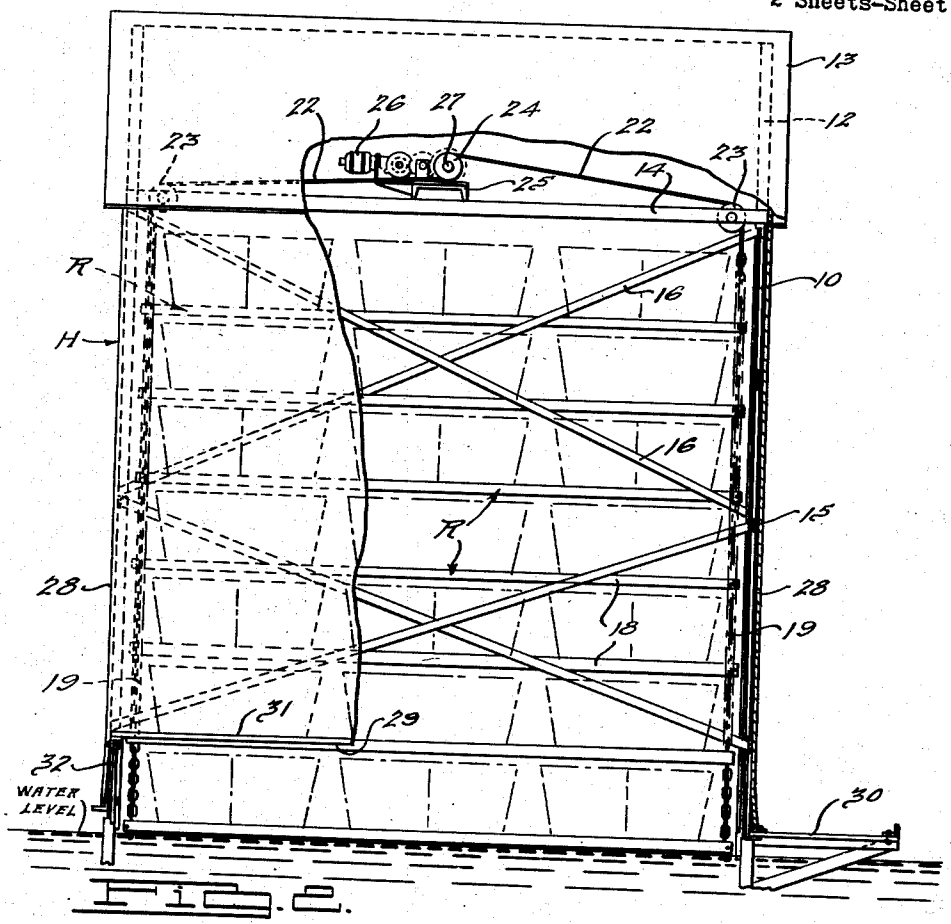


Fig. 2.

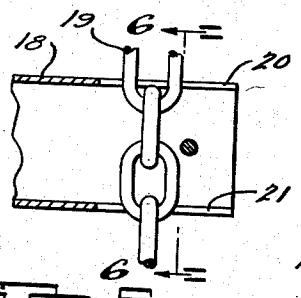


Fig. 5.

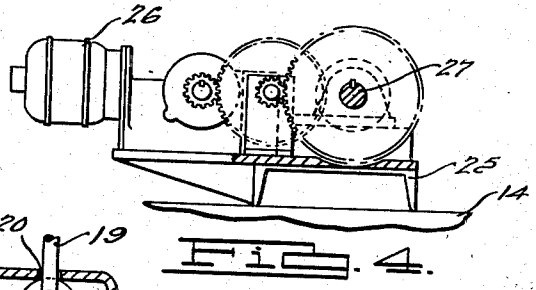


Fig. 4.

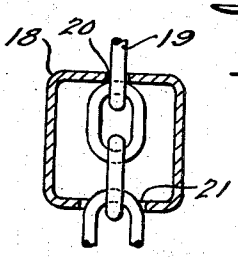


Fig. 6.

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BOAT HANDLING AND STORING APPARATUS

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2 Claims. (Cl. 214—16)

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This invention relates to boat liveries and more particularly to an improved system and apparatus for handling and storing boats such as are used in commercial boat liveries and the like.

Proper handling of boats in commercial liveries and in similar establishments involves considerable effort, inconvenience, and expense. In the first place, approximately five feet of shore space per each boat is required for proper functioning of a livery. In some cities the rent for the shore space runs as high as six or seven dollars per foot for one season, and therefore this expense alone may run into thousands of dollars per season even for an average size boat livery. Moreover, it is only a certain type of shore that is suitable for operating a boat livery. There must be a sufficiently wide walking space of sufficiently hard ground between the waterline and the steep bank or brush, since deep sand or mud makes walking rather unpleasant particularly for women with high heeled shoes. Also if the slope of the bottom is too gradual, a boat will rest on the bottom after several persons get into it, and the last person to get in to the boat or an attendant has to push the boat very hard often getting into the water. On the other hand, a relatively deep slope or the use of a pier or a float ensuring that the boat is floating from bow to stern even when fully loaded, may be a source of difficulty since during an occasional storm or high wind the boats may be violently banged or hammered against each other and damaged. In view of the above, a shore or beach space suitable for a boat livery is often difficult to find, and in some cases such space is simply unavailable at any price, which situation often deprives the public of healthy and inexpensive sport and recreation. Erection of special piers or floats due to the relatively large size required, involves considerable initial and maintenance expense, storage accommodation for the winter for the floats, and may not be permissible at all in many situations, such as on navigable rivers.

However, even a most suitable boat livery beach or shore space requires some initial outlay of money, constant attention and care; also even a relatively small boat livery requires considerable help for its proper operation and maintenance. Normal slow leakage and rain cause accumulation of water in the boats and requires pumping or dumping it out very often. The dust, dirt, and soot from smoke stacks of power plants often located near rivers deposit on boat benches and unless wiped often dirty the clothes of the users and cause justified complaints and even requests

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for compensation. Walking along a strip of sandy beach to receive and dispatch boats for a whole day is hard and very tiring work. Customers track a lot of dirt into the boats by their feet, and it becomes necessary to clean the boat before dispatching it or at least check whether the seats are clean. Keeping track of and counting all the boats during rush hours of business is often difficult.

Putting up the boats for winter and bringing them to the livery in spring is also very heavy work, and it involves considerable expense both in loading and unloading the heavy wet boats, and transporting them; the rents for a suitable building for winter should also be taken into account. Also, at the end of the season, the moss has to be scraped off the bottoms of the boats. Moss growth is not only a cause of additional expense but also a hindrance in operation of the boats, since in the late part of the summer the boats become heavy and slow. Use of special copper base paint, while effective, involves considerable expense, since such paint lasts only one season.

Additional difficulties in operation of boat liveries result from permanent or temporary loss of boats due to unauthorized use as well as due to their floating away during rain storms or rising water at night, which difficulties often require chaining and locking of each individual boat to a post.

One of the objects of the present invention is to provide an improved system and apparatus for handling small boats, such as conventional row boats, whereby the above difficulties are overcome and largely eliminated and operation and maintenance of boat liveries and similar establishments is made more easy and efficient, and less costly.

Another object of the invention is to provide an improved system and apparatus for handling boats, which can be installed on virtually any beach or shore, including some of such shores that would otherwise be unsuitable for such purposes, and which requires much less space or shoreline for its installation and operation than a conventional boat livery.

A further object of the invention is to provide an improved system and apparatus for handling boats whereby the necessity of frequent dumping of water from the boats and cleaning them is greatly reduced, and if done at all is done in a speedy and easy manner.

A still further object of the invention is to provide an improved system and apparatus for han-

dling boats, whereby necessary operations can be carried out in a concentrated manner and by a few persons only, and a very close check is constantly kept of all the boats without actually counting the entire quantity of them.

A still further object of the invention is to provide an improved system of the foregoing character whereby the boats are always kept under cover and therefore out of rain, dust and dirt, as well as hot sun, remain clean and ready for immediate use.

A still further object of the invention is to provide an improved apparatus for handling and storing boats, whereby the service life of the boats is greatly increased, and the expense of boat maintenance particularly for repairs and painting is greatly decreased.

A still further object of the invention is to provide an improved apparatus for handling and storing boats whereby growth of moss on the bottoms of the boats and accompanying inconvenience and expense are completely eliminated.

A still further object of the invention is to provide an improved system and apparatus for handling boats whereby putting up such boats for winter as well as bringing them back in spring becomes unnecessary and the boats may be safely kept on the shore all the year around.

A still further object of the invention is to provide an improved system and apparatus for handling boats whereby loss of boats by theft or due to their floating away during storms, etc., is eliminated without the necessity of locking or securely tying each individual boat.

A still further object of the invention is to provide an improved apparatus for handling and storing boats, which apparatus includes a housing structure providing a large and smooth panel which can be used for sign and advertising purposes, thereby saving the expense of erection and maintenance of large billboard signs.

A still further object of the invention is to provide an improved apparatus for handling and storing small boats, such as conventional row boats, which apparatus can be erected in its most convenient or standard size by hand and without the use of special cranes or other equipment for raising its separate structural members, and which can be easily manufactured by the so-called pre-fabrication methods, i. e. fully manufactured in a factory for relatively simple assembly in the field.

It is an added object of the present invention to provide an improved boat handling and storing apparatus, which is simple and rugged in construction, safe and dependable in operation, is relatively inexpensive to manufacture and easy to erect or assemble.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification, wherein like reference characters designate corresponding parts in the several views.

Fig. 1 is a side view partly in section of the boat handling and storing apparatus embodying the present invention, the cover panels of the housing structure being cut away to show the interior of the apparatus, the rack of the apparatus being shown fully loaded.

Fig. 2 is a front view of the apparatus of Fig. 1.

Fig. 3 is a view on a smaller scale, similar in part to Fig. 1 and showing the rack lowered all the way down to discharge or to receive boats on and from the uppermost story of the rack.

Fig. 4 is a view partly in section illustrating the hoisting device, said view being taken in the direction of the arrows on the section plane passing through the section line 4—4 of Fig. 1.

Fig. 5 is a view showing a detail of the rack, namely a connection between its rigid horizontal member and the chain, said view being taken in the direction of the arrows on the section plane passing through the section line of 5—5 of Fig. 1.

Fig. 6 is a view taken in the direction of the arrows on the section plane passing through the section line 6—6 of Fig. 5.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

In the drawing there is shown by way of example an improved boat handling and storing apparatus embodying the present invention. The apparatus shown in the drawings is particularly adapted for commercial boat liveries or similar establishments in which a number of similar boats, such as common row boats or the like, have to be rented or dispatched and received, and where selection of particular boats in the daily operations is not required.

The apparatus is adapted to be erected or installed over a body of water such as a river, a lake or a sound, and extend upwardly therefrom. Only a few feet of water, such as 2–3 feet, is required for a proper operation of the apparatus and therefore it may be erected either in the water protruding outwardly from the waterline, or a suitable excavation may be made on the shore itself in order to avoid such a protrusion. Also the apparatus may be installed on a float or a pier, and a greater depth of water than one above indicated does not affect operation of the apparatus.

Generally the apparatus comprises a housing structure such as a building having a steel framework and a corrugated or similar covering, which building is erected directly over the water level. Within the building or housing structure there is operatively mounted a multiple-story boat raising and lowering rack. Any suitable number of stories may be employed and each story may hold one or more boats. With the rack fully loaded and raised to its uppermost position, see Figs. 1 and 2, all of the stories and the boats held thereby are completely out of the water. In such a position the boats may be stored for an indefinite period of time, just for a few hours, overnight, or during the entire winter.

It is an important feature of the present invention that the rack is made collapsible. Therefore, when it becomes necessary to discharge any of the boats, the entire rack is lowered until its lowermost story goes down under to water level to the point where the boats held thereby are just beginning to float. The boats are then pulled out by hand or with a hook. If more boats are required to be discharged, the rack is lowered until the next story goes under the water level for discharge of its boats, and so on story after story until all of the boats are discharged. As the rack is lowered, the empty portions thereon collapse on the bottom of the body of water, see Fig. 3. For receiving or loading the boats the

process is reversed, and the rack is raised intermittently to load story after story.

Referring more specifically to the drawings, the present embodiment of the invention comprises a housing structure generally indicated by the character H and comprising a steel framework including corner members 10, 10 which may be of a built-up construction and have lower ends which are embedded in a suitable foundation such as concrete blocks provided on the bottom. The corner members 10, 10 support suitable roof trusses 12, 12 which, in turn support a suitable roof cover generally indicated by the numeral 13. The upper horizontal members 14, 14 connect the upper ends of the corner members 10, 10. The middle struts 15, 15 and diagonal braces 16, 16 bind the frame structure laterally and impart to its requisite rigidity. The lower horizontal members 17, 17 connect the lower portions of the member 10, 10 and are used as a support for a suitable board walk such as indicated at 30.

Within the housing structure H there is operatively mounted a vertically collapsible rack R. In the present embodiment of the invention the rack has seven stories or levels and is made up of a two chain ladder having horizontal bars 18, 18 connected with the aid of chains 19, 19. The chain ladders are operable in such a manner that the two corresponding horizontal bars 18, 18 thereof remain in the same moving plane as the ladders are raised or lowered.

The connection between the chains 19, 19 and the horizontal bars 18 is best shown in Figs. 5 and 6. The bars are preferably of a box-like or hollow rectangular section and are slotted at the top and bottom as shown at 20 and 21. The upper slots 20 are only as wide as is necessary for the passage of a chain link arranged in the plane of the slot, and therefore the next lower link of the chain provides a stop and supports the member 18. The lower slots 21 of the members 18 are made sufficiently wide to pass the chain 19 in any position of its links. By virtue of such a construction the members 18, 18 may be raised or lowered and connected to the chains 19 to suit the height of the boats or satisfy other requirements.

The chains 19, 19 of the ladders have their ends connected to cables 22, 22 passed over the idler pulleys 23, 23 and wound on the operating pulleys 24, 24 of the hoisting device supported immediately under the roof of the housing construction. The hoisting device may be of any suitable character, hand-operated or power operated, and may be of pneumatic, hydraulic or electrical type.

The hoisting device as such does not form the present invention and therefore only as much of its construction is described herein as is believed necessary for the proper understanding of the present invention.

The hoisting device employed in the present embodiment is electrically operated and comprises a suitable base structure 25 suitably supported on the framework of the housing construction, on which base structure there is secured an electric motor 26 drivingly connected through a train of gears with a shaft 27 carrying operating pulleys 24, 24 on which the cables 22 are wound as mentioned. The pulleys 24, 24 are grooved in a manner well known in the art in order to ensure proper self-treading of the cables 22. The operating pulleys 24, 24 being of the same diameters, mounted on the same shaft and therefore rotating at the same speed, the cables 22, 22 wind and unwind on and from said pulleys

24, 24 at the same rate, thus preserving the coplanar arrangement of the corresponding horizontal bars 18, 18 of the ladders and ensuring horizontal position of the boats in all operative positions of the ladders. Thus the two separate ladders form, in effect, a single rack.

It will be understood, however, that, if desired, the corresponding horizontal bars of the separate ladders may be braced or connected together to form horizontally extending frames or floors. I have found, however, that such connections are not necessary and their elimination is desirable in order to decrease the weight of the rack.

I have also found that while suitable vertical guides in which the ends of the horizontal bars 18 may slide while being restrained from lateral movements, may be desirable in some special situations, they may be dispensed with under average conditions in order to decrease the cost of the construction.

The framework of the housing construction is covered from the all sides with suitable cover panels 28 made of wood or sheet metal, to protect the boats from rain, dust and dirt, and to prevent the wind from swinging the rack from side to side. An opening 29, see Fig. 1, is provided in the front panel in order to enable discharging and loading of the boats from the story lowered into the discharging position. The panels 28 provide convenient and attractive advertising space which can be seen from long distances and which is unobstructed by other constructions.

One or two side board walks such as 30 leading from the shore to the front or dispatching end of the construction are provided. The front or dispatcher's board walk 31 adjustably supported on the members 17 is provided for the convenience of the operator. Adjustable connections, such as shown at 32 are desirable in order to permit lowering of the board walk 31 as the water level drops and it becomes necessary to lower the rack further down to reach the water level. It should be understood that the water level shown in the drawings represents the highest anticipated water level, and that as the water levels drop as is the case late in summer, no changes or adjustments in the apparatus except in the walk 31 are required, and that the only result is that the rack has to be lowered further down.

There is thus provided an improved apparatus for handling and storing boats whereby objects of the present invention, listed above and numerous additional advantages are attained.

I claim:

1. A boat launching, receiving and storing apparatus, a supporting structure resting on the bottom of a body of water and extending wholly over the water surface above the same, said structure being enclosed from the sides and top but open at its bottom and having at least one side opening immediately above the water level capable to pass a floating boat, a multiple-story permanently connected rack adapted to support a number of boats on each of its stories and operatively mounted on said supporting structure to be lowered directly into water to the point where the boats of the uppermost story are floating and to be raised from the water to the point where the boats of the lowermost story are suspended above water level, said rack being further adapted to be lowered and raised in steps to bring each of said stories sufficiently under the water level to receive and to discharge the boats of the respective stories through said side opening, said rack

being further adapted to have its emptied stories collapse one on the top of the other as they reach the bottom of the body of water.

2. A boat handling and storing apparatus comprising a supporting frame structure resting on the bottom of a body of water and extending wholly over the water surface above the same, two spaced chain ladders having a plurality of horizontal bars and vertically extending chains connecting said bars, said ladders being suspended within said frame structure and arranged parallel to each other with the corresponding bars of said ladders being arranged within the same horizontal planes to form a rack with a plurality of decks each adapted to support a plurality of boats, hoist means for selectively raising and lowering said rack directly into the water to bring each of the decks thereof one after another under the surface of the water to receive and to discharge boats from each individual deck, said rack being collapsible when lowered on the bottom but preserving the unity of the rack.

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