

W. R. MITCHELL.
 CARRIER AND SUBMARINE TUBE FOR GATHERING OYSTERS AND THE LIKE.
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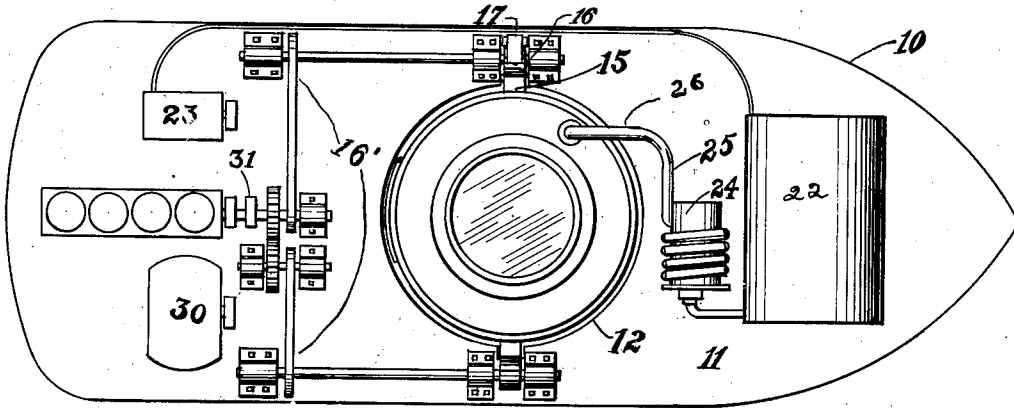


Fig. 1.

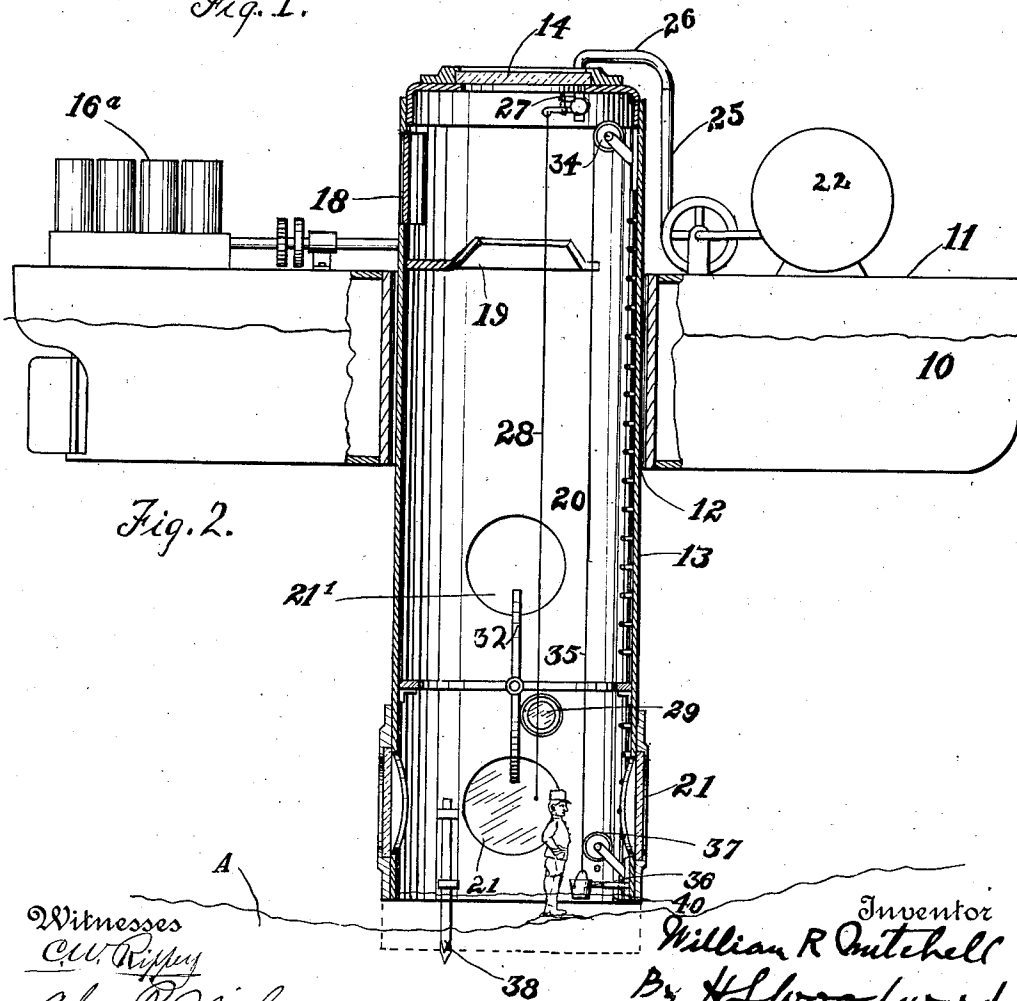


Fig. 2.

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CARRIER AND SUBMARINE TUBE FOR GATHERING OYSTERS AND THE LIKE.

1,048,194.

Specification of Letters Patent.

Patented Dec. 24, 1912.

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To all whom it may concern:

Be it known that I, WILLIAM R. MITCHELL, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Carriers and Submarine Tubes for Gathering Oysters and the Like, of which the following is a specification.

10 This invention relates to means for conducting operations on river and ocean bottoms, and has for its object to provide means enabling workmen to work freely while standing or walking on such bed protected
15 from being submerged, and provided with a proper space within which to move freely about and observe the character of the ground surface immediately beneath and also that without the working space.

20 It is a particular object to provide means for handling a bell or caisson element with facility and by the aid of simple apparatus, operable either by hand or mechanical power.

25 Another important object is to so mount the caisson element upon a vessel that it will be liable in a minimum degree to be displaced by currents of water, swells upon the surface of the water and other factors.

30 An important use to which it is desired to adapt this device is that of gathering oysters, enabling two or three men to operate the apparatus and perform the work necessary. At present the oyster is obtained by
35 dredging, and the result of the operation is more or less uncertain on account of the impossibility of observing the character of the bottom, and because of difficulty in operating dredging apparatus, as well as the
40 amount of time required for accomplishing a given amount of work.

The device will also be useful for pearl fishing, gold prospecting and mining, inspection of river and ocean bottoms and
45 other uses, some of which will be indicated in the following description and drawings, in which latter—

50 Figure 1 is a plan of a vessel and apparatus constructed in accordance with my invention. Fig. 2 is a vertical longitudinal section through the vessel.

There is illustrated a vessel hull 10 of any suitable construction having a deck 11 and provided with a circular well 12 extending
55 vertically therethrough, opening through the deck and bottom of the hull, and located

at any desirable point in the vessel, but preferably near the middle.

Vertically disposed and freely movable in this bottomless well, and engaged snugly therein in a suitable manner against loose
60 movement, there is a bottomless tube 13 of steel or other suitable material, closed at its top by a suitable large window 14 and being of a suitable length to extend above and
65 below the vessel, a suitable distance. The tube is provided at each side with a rack 15, and pinions 16 suitably mounted on the deck 11 engage the racks respectively, through
70 rotation of which gears the tube is moved vertically, suitable connection 16' being provided between the gears and a motor 16^a located at a suitable point on the vessel, although it will of course be apparent that a
75 familiar hand operated mechanism could be substituted therefor. A dog or other device at 17 may be engaged with the gears to lock them against movement at any point, so that the tube may be fixed rigidly with respect
80 to the vessel when desired.

A suitable airtight door 18 is provided in the side of and near the top of the tube through which access and egress may be effected to and from the tube directly from
85 and to the body of the vessel. A floor 19 is provided in the tube just below the door 18, stopping short of the opposite side of the tube to permit the passage of persons and material to and from the lower part of the
90 tube, a ladder 20 being attached to the adjacent side of the tube for the use of workmen. Windows 21 are built in the tube near its lower end permitting observation, and access of light. Compressed air may be supplied to the tube from a tank
95 22, on the vessel connected with a compressor 23 operated by the motor, although a hand operated compressor may be used in the absence of the motor.

The connection between the tank and tube
100 may be in the form of a hollow revolvable drum 24, axial air connections between which and the tank are provided and a tube 25 wound thereon in communication with the interior of the drum at one end, and at
105 its other led into the tube by means of a pipe 26 having a valve 27 within the tube controlled by a line 28 pendant therefrom the lower end being convenient to the hand of a workman at the lower end of the tube.
110 The valve is preferably adapted to feed air constantly to the tube at a proper rate, when

opened initially, and by means of the line 28 the flow may be increased at will. By means of the drum 24 also, electric wiring may be led into the tube to supply lights as at 29. In the event that a motor 16^a is used on the vessel current may be generated by a dynamo as at 30. It is of course obvious that a clutch must be interposed between the connections for the compressor and dynamo and those for raising and lowering the tube, as at 31.

Adjacent the lower end of the tube, a suitable door 32 is provided, which may be closed watertight at times to prevent water from rising in the tube when the air pressure is relieved, the door then serving as a floor. Windows 21' may be located in the tube above the floor whereby the device may be utilized as a comfortable means for submarine observation.

A pulley 34 is mounted in the tube adjacent its upper end from which is supported the line 35 carrying a suitable receptacle 36 at one end and connected at its other end to the hoisting drum 37.

A suitable bolt 38 of considerable length is mounted slidably on the side of the tube for projection therebelow, to be used occasionally as will be indicated. Means should be provided to retain the bolt in retracted position normally.

In use, the tube is lowered to bring its lower end into proximity with the bottom of the river or ocean in which operations are to be conducted, air under pressure sufficient to maintain the water at the lower end of the tube being admitted. The workmen then enter, descending into what water remains over the bottom under the tube, and by bearing against the tube it, together with the vessel, may be moved by the workman over the bottom in any desired direction until it is in position for the performance of the work in view, when by shooting the bolt 38 against the bottom the device will be held in place, the tube and vessel 10 being both held, and the tube made to serve the function of an anchorage device for the vessel in addition to those of the usual caisson. Should there be a considerable "swell" on the sur-

face of the water causing the vessel to rock unduly, the reciprocating mechanism may be operated to force the tube downward until engaged firmly in the bed A, as shown in dotted lines in Fig. 2, partly supporting the vessel which will thereby be prevented from rocking to such extent as would interfere with work in the tube.

By means of the bucket and drum 36 and 37 any material to be raised and removed from the tube may be hoisted and deposited on the floor 19, from whence it may be shoveled at such intervals as are desirable.

A bench 40 is provided at one side of the tube at or near the bottom thereof, upon which the workman may stand when necessary, as for instance when it is desired to move the tube by power applied to the vessel 10, which may be self propelled if desired.

In this way oysters may be gathered by means of an ordinary hand shovel or fork, with which they may be deposited in the bucket 36 or the like, or other hoisting means, and raised. As the workman can see readily how the material to be gathered is disposed his movements may be directed with great efficiency.

What is claimed is:

A device of the class described comprising a buoyant vessel, a caisson tube adapted to be sealed at its upper end and mounted on the vessel for vertical movement, means for holding the vessel and tube in rigid relation at times, means for moving the tube vertically on the vessel, means for supplying compressed air thereto, a storage device within the tube, means for anchoring the device on a bottom, and means for introducing excavated material in to the storage device, whereby oysters or the like may be dredged and stored within the tube conveniently for removal in bulk.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM R. MITCHELL.

Witnesses:

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