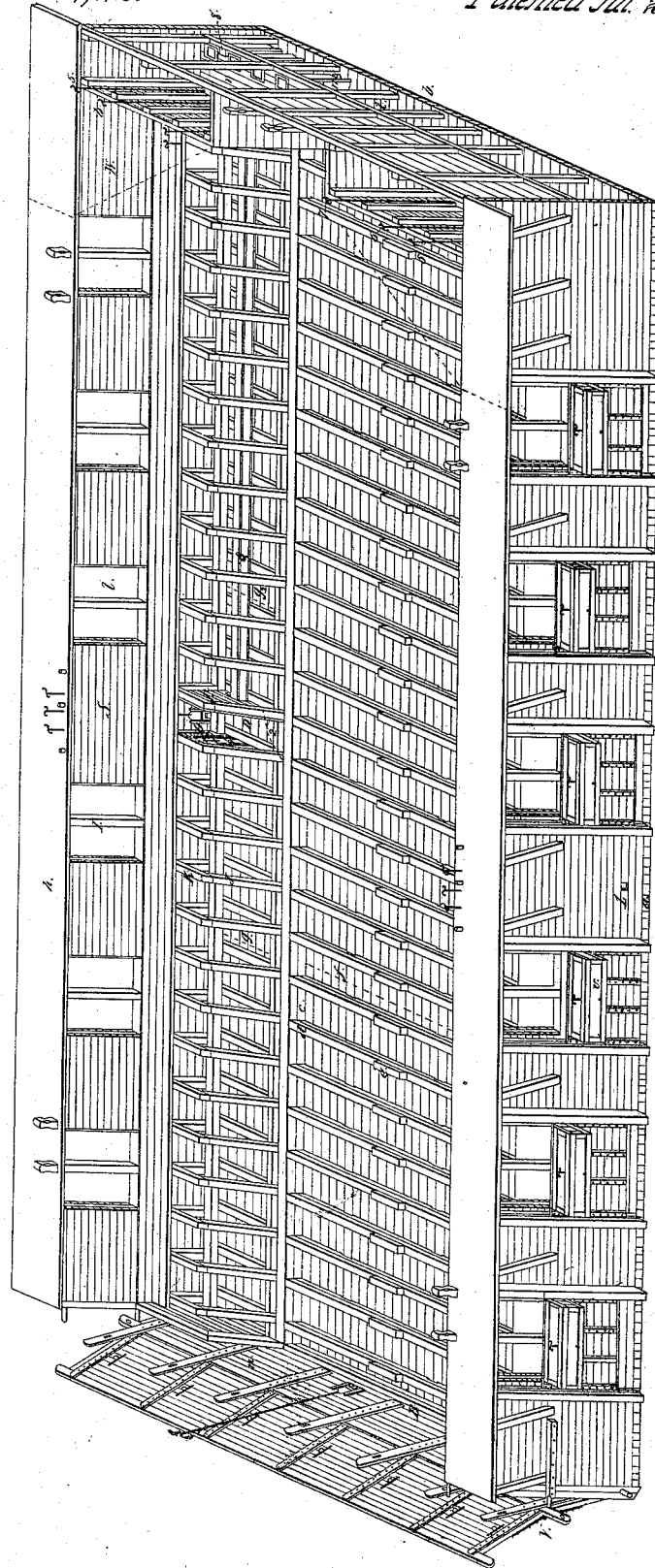


J.S. Gilbert

Floating Dry Dock.

N^o 2,742.

Patented Jul. 28, 1842.



*Scale
0 to 100 Feet*

UNITED STATES PATENT OFFICE.

JOHN S. GILBERT, OF NEW YORK, N. Y.

FLOATING DRY-DOCK.

Specification of Letters Patent No. 2,742, dated July 28, 1842.

To all whom it may concern:

Be it known that I, JOHN S. GILBERT, of the city and county of New York, in the State of New York, engineer, have invented
5 new and useful improvements in floating dry-docks for the purpose of raising vessels out of water for repairs and also for the purpose of carrying loaded vessels or ves-
10 sels without cargo over bars or shoals in rivers or harbors, which improved dry-dock I denominate the "improved floating bal-
ance dry-dock"; and I declare the follow-
ing to be a full and exact description thereof.

In constructing this dock of wood instead
15 of iron I in the first place make a platform of timbers of such length and breadth as may be required for the class of ships for which the dock is intended, for vessels of
20 one thousand tons the width should be about sixty feet and the length about one hundred and sixty five feet.

My mode of constructing this platform or bottom is as follows—If the bottom is to
be sixty feet wide I take pieces of timber
25 sixty feet long and treenail them together or if pieces of that length cannot be obtained pieces of various lengths may be used avoid-
ing as much as possible placing the joints opposite to each other, when the requisite
30 number of these cross floor timbers or lower clamps are thus fastened together to make a platform of the required length and
breadth I calk the seams with wedges of soft dry wood in this way I make a plat-
35 form perfectly water tight without the use of oakum. The ends of the timbers that form this lower thickness are seen at —a— of
the drawing which is a perspective view. I in the next place build up the sides and
40 ends as high as the dock will be immersed when finished which will be say about five feet. My mode of building up the sides and
ends thus far is to bolt regular courses of thick timber one on the top of another. The
45 first or lower course may be screw bolted to the platform, the end at which the vessel enters is left lower than the other as seen
at —B— I drive all the joints made by building up these sides and ends with
50 wedges as before described. I then lay another thickness of timber on the top of the platform lengthwise of the dock and tree-
nail one piece to another in the same manner as the first and also bolt each piece down
55 upon the lower clamps —a—. This second thickness is wedged in the same manner as

the first, the ends of this fore and aft plat-
form is seen at —b—. I then bolt on upper cross timbers to form the rests for a cradle
60 on which the weight of the vessel is borne and they also give additional transverse strength. These upper clamps are seen at
—C— on the drawing. When the dock is thus far finished it may be launched into
the water.

—d— represents the riders or cradle on
65 which the vessel rests. These are raised or lowered according to draft or weight of the vessel by dogging on more or less in number
the object and uses of which will be more
70 fully explained in another part of this specification.

Having made a substantial bottom and
sides as high as above described of thick
timber well bolted to the platform I put up
75 the posts to form ribs for the outsides of the side camels or chambers. These posts are about twenty two feet high. They are
fastened at their lower ends to the cross
timbers —C— and also to the thick work
80 —B—. These posts are seen at —I—. They are also put up across one end of the plat-
form to form a continuation of the outsides of the side camels and also to form one side
85 of a pumpwell at the end of the dock having put up sufficient posts along the sides and
across one end I plank the end up in the ordinary mode of planking up ships.

The sides are planked up about twelve
feet in the ordinary mode of planking up
90 vessels; above this the sides are planked in sections only leaving openings for a passage
through which to pass timber and other ma-
terials to the vessel in the dock over the
decks of the side camels; the sections
95 planked up are seen at —s—and the openings are seen at —t—these openings are provided
with gates that slide up and down in grooves and they are each provided with a water-
tight tank which closes the gate as the dock
100 sinks and thereby prevents the sea heaving in and as the dock rises the tank follows the water down and again opens the gates;
the tank attached to the gate is seen at *u*.
I next proceed to divide the transverse
105 section of the platform into three parts; the middle division is set off of sufficient width
to give room between the side camels or chambers for the workmen to repair the
bottom and sides of the vessel; the space
110 left on each side for the side camels is seen at *g* and *g*² and the space reserved for the

ship and workmen is seen at *f*. I next proceed to put up the posts that form the inside ribs of the side camels or chambers; these ribs are bolted to the sides or stepped on to the top of the upper clamps as may be preferred and are seen at *J*; the lower ends of both the inside and outside ribs are supported by a timber bolted on to the upper clamps and running the whole length of the platform these inside ribs extend up on such an angle as shall give room for the workmen and at the same time approximate to the shape of a vessel's bottom as nearly as possible; they sometimes are made to extend up on a straight line and are fastened at their upper ends to the ribs that form the outsides of the side camels or chambers but in the drawing that accompanies this specification they extend up about half way say twelve feet and are joined to the outside ribs by a deck beam as seen at *K*. This form may be preferable for steamships with paddle wheels on each side. I next proceed to set up the ribs that form the inside of the end or continuation of the side camels; these may be put up exactly to correspond with the side camels but I generally set up posts about six feet from the latter end and make the end camel or forward pump well extend entirely across the forward end of the platform. This arrangement will divide this compartment from the middle and also from the sides. These inside ribs being planked up I build a tight deck in this pump well about seven feet above the bottom of the dock. This divides the pump well into an upper and lower hold. The pumps are cut through this deck and extend up to the top of it and no farther. They lift the water into the upper hold or chamber and from it the water passes overboard. This lower hold or well is seen at *b*.

The forward end of the dock in the drawing is left without planking in order to show the internal arrangements; the upper chamber and deck is seen at *v*; the pumps are seen at *m*; a gate to let the water out of the upper chamber is cut through the forward end of the dock directly opposite the pumps and even with the upper side of the deck *r*; this gate cannot be seen in the drawing.

Having planked up all the ribs and calked the planking the dock is divided into four separate water tight vessels all joined together and having as yet no communication one with another. In the next place proceed to the organization of the machine by which all the parts are made to act in concert or each one may be made to act alone in raising or depressing.

I divide each of the side camels or chambers into two or more separate compartments by building up tight bulkheads

across them fastening the bulkheads to the frames already described all the frames may be strengthened by bulkheads or braces. In the dock which the drawing represents the camels or chambers on each side are divided into three separate compartments the middle compartment is small and is sometimes used as a pumpwell instead of placing the pumps at the camel or chamber that connects the two side camels together this middle chamber is seen at —D— the bulkheads that form it are seen at —O— and —P— a gate —1— is cut through the outside planking of this middle chamber, a gate —3— is cut through the bulkhead —O— and a gate —4— is cut through the bulkhead —P—.

The conductor —2— passes through the bulkhead —P— along the whole length of the compartment *g*² and through the bulkhead that divides the end camel or compartment from the middle of the dock, and this bulkhead also divides the end from the side compartments, this conductor forms a communication from the middle to the forward chamber for the passage of water, a gate —6— is made to close the end of this conductor—a gate —5— is cut alongside of this conductor through the bulkhead of the pumpwell—a gate —7— is also cut through this pumpwell bulkhead to admit water from the middle of the dock to the pumpwell—a gate is cut through the planking of the inside of the side camels directly opposite to the gate —1— by the two gates a passage is made for the water to pass from the outside through the middle chamber to the inside of the dock but as the inside planking is left off to show the internal arrangements this gate is marked 2.

The organization of the side camels are alike on both sides and all letters of reference are meant to apply to both sides—a platform is built on the top of the outside ribs and extends over the pumpwell and forms a deck. There is a deck across the corner for the engine house this deck is spotted off and is seen at —W— the platform is seen at —h—. It will be seen that I can use my dock for lifting vessels out of water without a gate to inclose the vessel for any reasonable amount of lifting power may be obtained by the side and end camels or chambers by raising my cradle in the manner heretofore explained in this specification and I need not of necessity have a tight bottom yet in all cases I think it better to have a tight bottom and a gate to inclose the vessel, because if the vessel proves very heavy I have a reserved power which I can bring to bear up the vessel and because I can exclude the action of the waves the inclosing gate *j* seen at —n— the wicket through which the water passes out as the side camels are exhausted and in

which the dock is sinking is seen at x — this entrance gate may be made to fold by having the upper part hung with hinges as seen at v —.

5 Having constructed my improved floating balance dry dock in manner substantially as herein set forth and described, I use it for docking vessels in the following manner: When I sink it for the reception
10 of a vessel I open the gates $1-3-4$ that communicate with the middle tank on each side I then open the wicket gate x — I then open the 5 — and 7 — on each side this allows the water to pass into
15 all the separate compartments of dock, as it sinks I shut the gate that communicates with any part that sinks too fast and thereby preserve the equilibrium when the dock is low enough for the reception of
20 the vessel all the gates are closed and the main or entrance gate is opened this entrance gate is furnished with ballast sufficient to sink it the ballast being placed outside of the center upon which the gate turns
25 it opens of itself when the tackles are slacked the vessel is then hauled in and placed as near the middle as possible. The gate is then closed behind the vessel the wicket x — being left open the pumps are started
30 and the water is exhausted wholly or in part from the side and end camels or chambers and as the dock rises with its load the water passes out at the wicket from around the vessel the equilibrium of the dock being
35 maintained by taking more or less water from any particular compartment by means of the conductor and the gates as already described in the process of sinking.
The height to which the vessel will be lifted
40 above water by the power of the chamber or camels on the side and at the end will depend upon the height of the cradle but in most cases it will be found better to close the wicket and pump out the middle, the
45 platform on which the workmen stand to repair the bottom of the vessel is made to float.

Thus far I have described my dry dock as being capable of sinking by its own weight
50 but I sometimes sink it to great depths by pumping water into the side camel. My mode of sinking it in this way is very simple. There is a gate in the forward end of my dock to pass the water out of the upper
55 chamber v — into which the pumps lift the water this gate being closed and the

gate 7 — being opened the chamber v — will be filled by the pump. I then open the gate 8 and pass the water by other conductor Q and the gate in the side camels to any compartment required. The gate 7 is closed
60 when the gate 8 is opened.

Having fully described my improved floating bottom dry dock and also the mode of using it, I do not claim simply making and
65 using camels placed against each side of a vessel and by which she is raised and floated over shoals, they having been used before my invention—neither do I claim making and using a floating dry dock with tanks,
70 or trunks, on each side divided into separate compartments by tight bulkheads because that kind of dry dock I have patented and further I do not claim simply uniting the separate compartments of a float with a
75 pump will by means of pipes governed by cocks or valves as this has been patented, but in the patent referred to the separate compartments of a float are united with a
80 pump well the dock being composed of a series of such floats on the tops of which the vessel rests but

What I wish to claim as my invention and desire to secure by Letters Patent is—

1. The method of connecting all the
85 chambers or separate compartments on each side of the dock with the pump well by means of pipes or conductors governed by cocks, gates, or valves whereby all the separate compartments are made to act in concert or alone or any number of them in
90 depressing or raising the dock in manner substantially as herein described, and I wish it distinctly understood that I claim this arrangement whether applied to docks with
95 two side camels united together or to side camels disconnected.

2. I claim the dividing the camels into an upper and lower chamber or both by means of a tight bulkhead or deck as seen at r in
100 the manner and for the purposes as substantially herein described.

3. I claim making and using gates on the sides of floating dry docks in combination with the tanks or trunks for the
105 purposes and in the manner as substantially herein described.

JOHN S. GILBERT.

Witnesses:

ISAAC BEERS,
WM. CHASE.