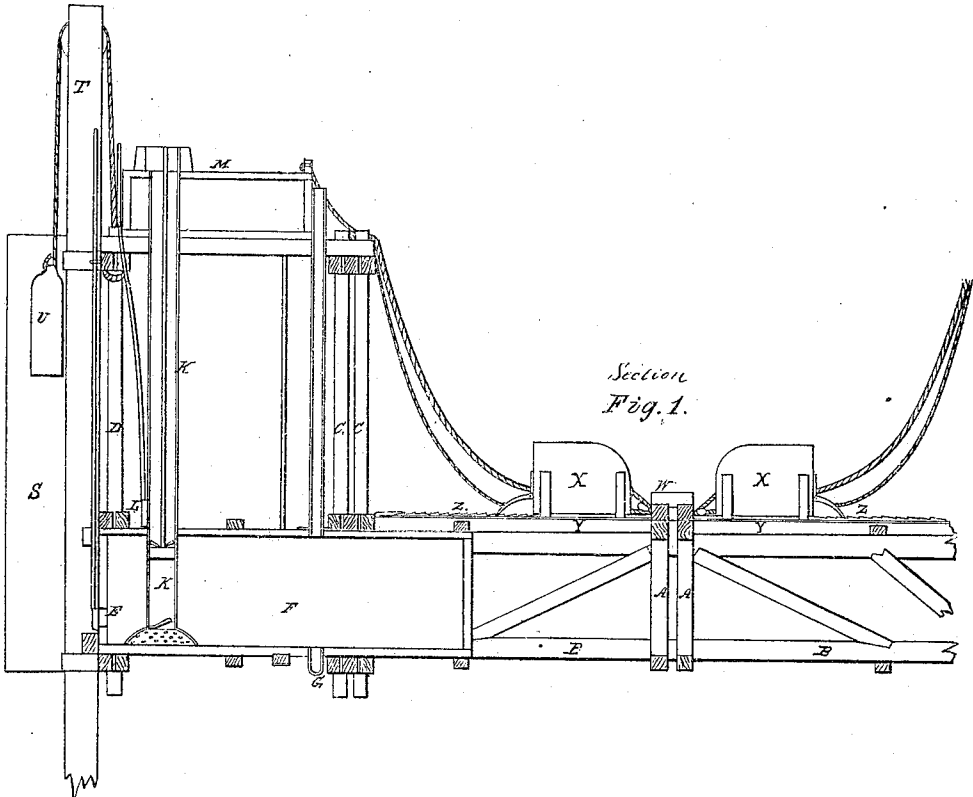


S. Hill.
Floating Dry Dock.

N^o 2,442

Patented Feb. 1, 1842.



Witnesses
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R. L. Smith

Inventor
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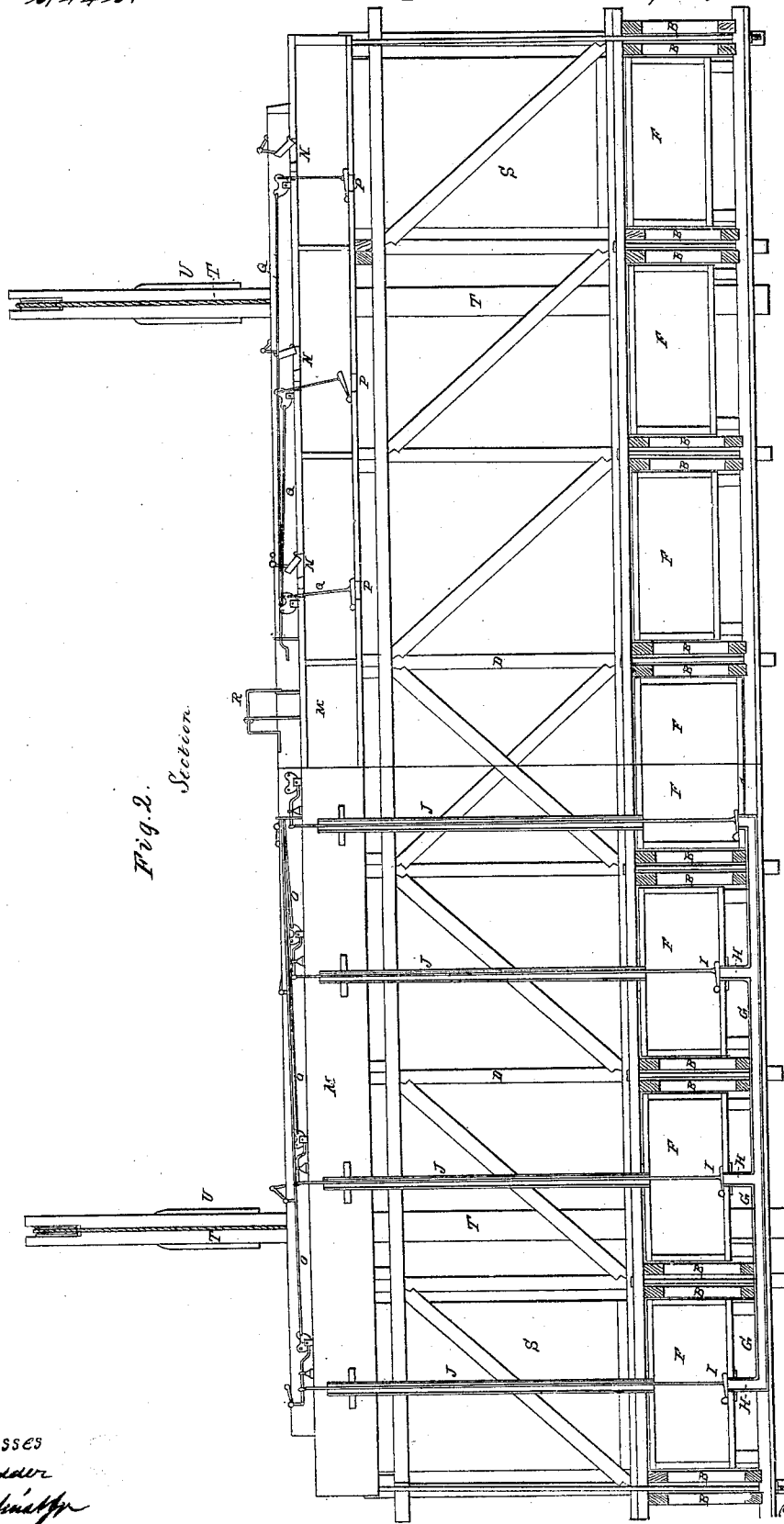


Fig. 2.
Section.

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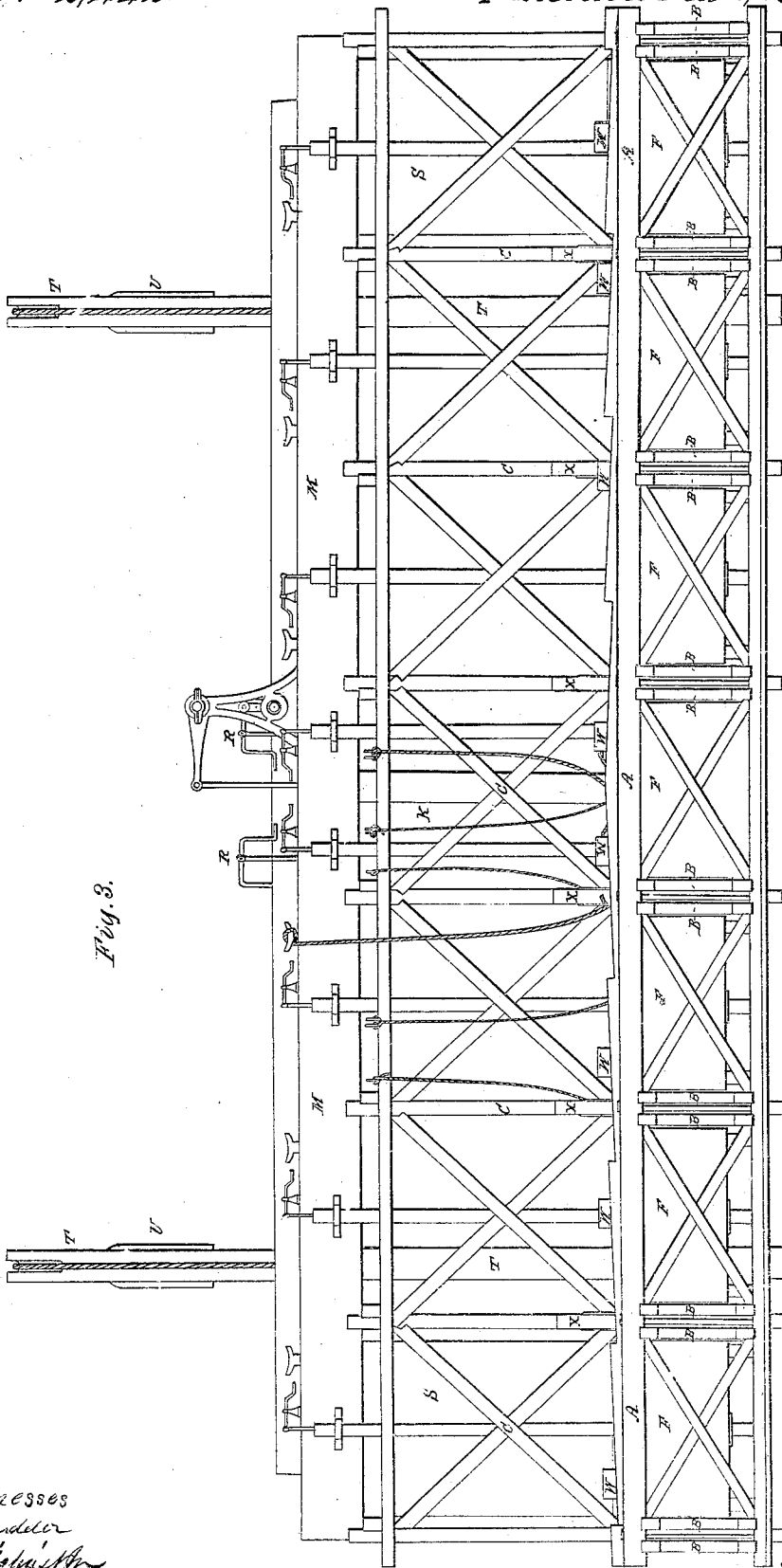


Fig. 3.

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UNITED STATES PATENT OFFICE.

SELAH HILL, OF JERSEY CITY, NEW JERSEY.

FLOATING DRY-DOCK.

Specification of Letters Patent No. 2,442, dated February 1, 1842.

To all whom it may concern:

Be it known that I, SELAH HILL, of Jersey City, Hudson county, and State of New Jersey, have invented a new and improved floating dry-dock applicable to the raising of ships, steamboats, or vessels of any tonnage out of water for repairing or other purposes; and I do hereby declare that the following is a full and exact description.

I construct my dock after the manner shown by the drawing annexed, the framing to be of wood, composed of a series of truss girders, due regard being paid to stability, adhering as closely as possible to the proper resolution of their forces by the most improved principles of carpentry.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation. I construct in the first place, the two center trusses, as marked in drawings, A, A, Figs. 1 and 3, which I shall call the keel trusses, being constructed to receive the keel of the ship and running longitudinally through the center of the dock, and receiving at right angles, eight transverse trusses, one at each end of the dock, and six more intervening between; these trusses being what are called double trusses as marked B, B, B, B, B, Fig. 3; these eight trusses dividing the whole dock into seven sections. The next in construction are the two main wall trusses marked C, C, in Figs. 1, 2 and 3. These trusses run parallel to the keel trusses, forming the inside of the dock and are constructed on the principles of Colon Long's patent; outside of these, at the extremity of the dock, transversely, is constructed another truss which I shall call the outside wall truss, as marked D, D, in Figs. 1, 2, 3. These aforementioned keel trusses, transverse trusses, and outside and inside wall trusses form a combination of carpentry of a peculiar character, calculated to sustain their proper and various strains and weights in the most advantageous manner. In the lower part of the dock, and below what I call the floor of the dock, I place my tanks, or trunks marked F, F, F, F, Figs. 1, 2, 3, between each of the eight transverse trusses and having a bearing on the underside of the second tier of timbers from the bottom of each of the wall trusses, so as to keep these aforementioned tanks or trunks, which I use as the buoyant agent, when the water is pumped out, firmly in their places.

Now it will be readily seen that the general construction of the aforementioned trussing and framing is beautifully adapted to receive the various strains and forces in the operation of sinking the dock, or, after the water is pumped out, of lifting it out of the water, with the weight of the ship or vessel.

The valve marked E, Fig. 1, is a valve which is fixed on the side of the center tank having a handle and rod conveyed to the upper gallery or top of the dock; this valve when drawn up lets the water in, which is the first operation in sinking the dock. Now it is understood that the water for all the tanks on one side of the dock is let in through the center tank, from which by means hereinafter described, the water can be let in to either of the tanks at the discretion of the engineer, some tanks requiring more or less water, depending altogether upon circumstances, in the balancing of the dock. This operation is effected by means of a connecting pipe running right and left as marked G, G, from the center tank having attached a pipe at right angles bending up to the bottom of the tanks and fastened with a flange, as is shown and marked H, H, H, Figs. 2 and 3. The object of this arrangement will be readily seen, for by providing each branch of the pipe with a clack valve, directly over the aperture of the pipe, and inside of the tank as marked I I I I Fig. 2, and attaching to each valve a rod running to the upper gallery of the dock through the air pipes J, J, J, J, the engineer has perfect control of each and every one of these tanks, to let more or less water in or out at pleasure, this being a most important desideratum in docks of this kind, which in the aforementioned arrangement is accomplished by such simple means. The pump marked K Fig. 1, has on its side and a little above the upper surface of the lower tanks, the sluice or valve marked L. This valve is to let the water out at that point, when pumping the tanks out; or when sinking the dock, close the valve and the pump will lift the water to the upper tank marked M, on the upper gallery. This trunk is for the purpose of sinking down the dock after the vessel on it, has been repaired to effect a proper balance when it is going down, I have provided the upper tank with separate compartments, and each compartment is provided with a separate valve as

marked N, N, N, Fig. 2, so that the water may be conveyed to either of these compartments at the will of the engineer by means of the rods O, O, O, Fig. 2.

5 P, P, P, P, are valves at the bottom for the purpose of letting the water out of these compartments,—handles and rods being provided and conveyed to the engineer as marked at Q, Q, Q, Q, Fig. 2.—Immediately over the aforementioned tank, is a chute or gutter marked M, to convey the water from the pump to each of the upper compartments being provided with two gates marked R, R, Figs. 2 and 3, so as to turn 10 the water fore or aft of the dock.—K, Fig. 1, is the pump going to the bottom of the center tank which is worked by a steam engine,—S, S, S, S, are long air tanks, placed at each corner of the dock making four in 20 number, fastened to the outside wall trusses, for the purpose of giving a greater steadiness to the dock,—the air tanks are worked in conjunction with, or separately from, four moving piles T, T, T, T, Figs. 1, 2, 25 and 3. These piles resting on the ground under the water, and kept their iron weights marked U, U, U, U, attached to one end of a chain or rope, passing over a shieve at the top of each pile and the other end attached 30 to the dock—so that the dock is kept in a steady position while raising and sinking in or floating on the surface of the water. By reference to the tops of the keel trusses marked A, A, Figs. 3 and 1, it will be seen 35 that there is constructed a succession of inclined planes of equal elevation each rising from a line to the floor of the dock and declining from the center of the dock toward the ends of the same. Each of these planes 40 is provided with a keel block marked W.—These several inclined planes when provided with a block to slide on its surface gives the engineer the power to fit the keel of the vessel so as not to strain her, but to take 45 her natural or accidental bearing—this being effected by means of each keel block hav-

ing a rope attached to it, which after passing around a shieve, is conveyed to the upper gallery so as to be under the control of the engineer.

XXX, Fig. 1, are the slideing or bilge-blocks for propping the sides of the vessel—these blocks run in ratchet grooves Y Y Y and are kept to their places by means of ratchet ketches Z, Z.—Attached to these 55 blocks is a rope fastened at the front of the block and passed around a shieve and conveyed to the upper gallery so that the action of each and every of the several parts is at the command of the engineer while 60 standing on the upper gallery the whole forming a much more simple and useful dock than has heretofore been in use.

What I claim as my invention and desire to secure by Letters Patent is— 65

1. The method of raising and balancing the dock by means of the air tanks in combination with the moving piles, cords or chains and weights, in connection with the lower tanks and their apparatus as above described. 70

2. Also the manner of using the keel-blocks on inclined planes running parallel with the length of the dock so as to fit accidental or other irregularities in the line 75 of the lower surface of the keel of a vessel as above described.

3. And also the method of distributing the water into any of the sections of the upper tanks by chutes valves, and rods as above 80 described.

In testimony whereof I the said SELAH HILL hereto subscribe my name in the presence of the witnesses whose names are hereto subscribed on the eighteenth day of January in the year of our Lord one thousand 85 eight hundred and forty-two.

SELAH HILL.

Witnesses:

B. K. MORSELL,
J. J. GREENOUGH.