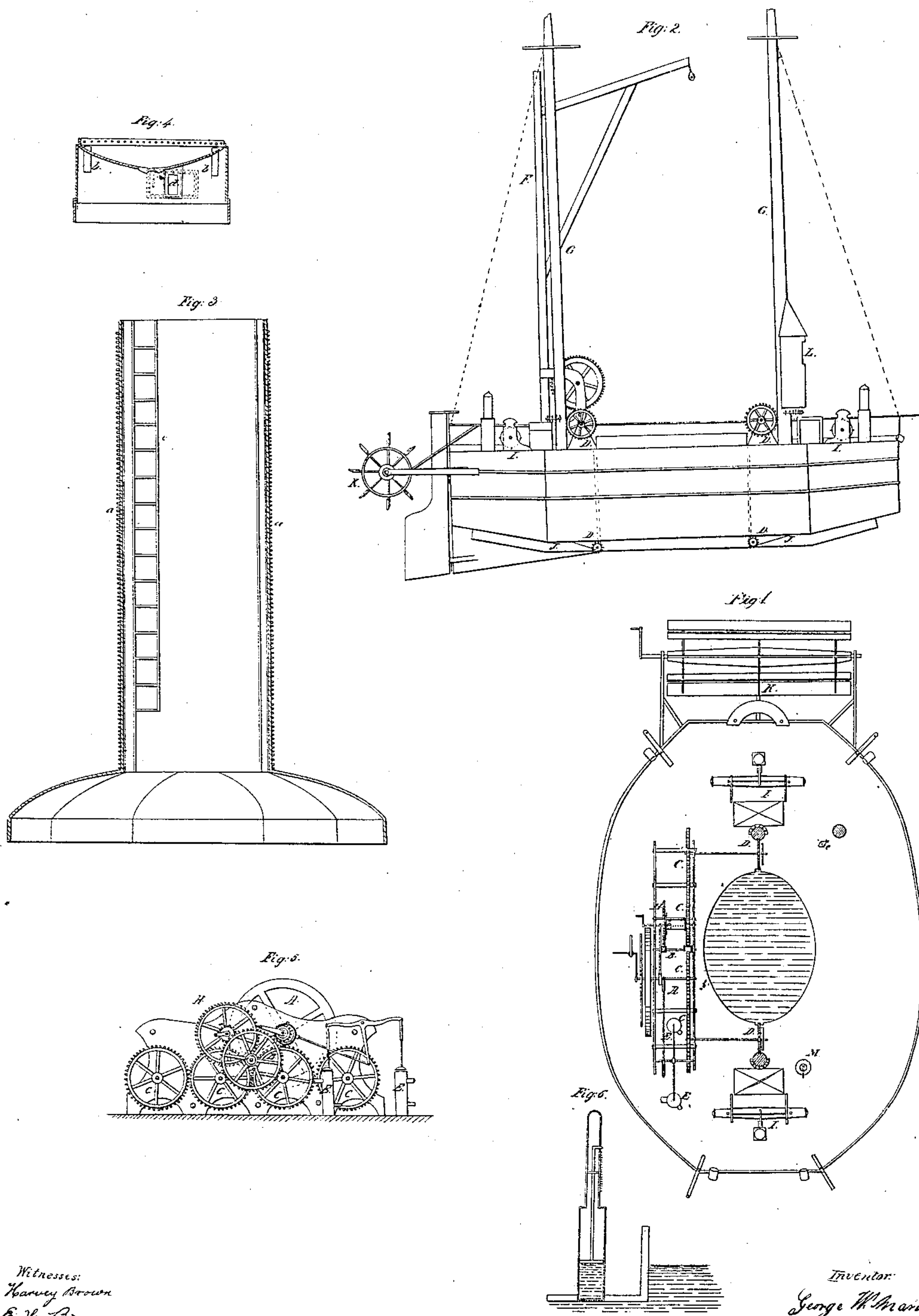


G. W. MARTIN.
SUBMARINE OPERATOR.

No. 29,296.

Patented July 24, 1860.



Witnesses:
Harvey Brown
C. H. Brown

Inventor:
George W. Martin

UNITED STATES PATENT OFFICE.

GEORGE W. MARTIN, OF WEST MORISIANNA, NEW YORK.

SUBMARINE OPERATOR.

Specification of Letters Patent No. 29,296, dated July 24, 1860.

To all whom it may concern:

Be it known that I, GEORGE W. MARTIN, of the town of West Morisianna, county of Westchester, and State of New York, have
5 invented a new and useful Machine for Submarine Operations; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the
10 annexed drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

Figure 1 exhibits the plan; Fig. 2, a side elevation; Fig. 3, a vertical section of the
15 caisson, tube, or well; Fig. 4, a vertical section of the cap piece; Fig. 5, a side view of the gearing; Fig. 6, a section of the water level gage.

A is the crank shaft to which the power
20 is attached containing the adjustable driving pinions and cam; B, the receiving wheel shaft and pinion; C, C, C, C, gearing wheels by which the well is moved up or down; D, D, the pinions upon the shafts of the two
25 outside gearing wheels for the purpose of moving the well up or down by means of the ratchets *a, a*, attached thereto; E, E, the pumps for air or water to be connected by elastic tubes (india rubber or otherwise)
30 with the tubes in the well, and moved by the cam upon the crank shaft A; *b, b, b, b*, the tubes for admitting or discharging the air or water to or from the well by means of the pumps E, E; *c*, the ladder by which the well
35 is entered; *d*, the door of admission to the well through the cap piece Fig. 4; F, the crane and fixtures for the purpose of raising weights in or out of the well or otherwise; G, spars or masts for tackle blocks for raising
40 weights; H, the wheel for aiding the fall of the crane tackle through the latch block *e*; I, I, windlasses for the purposes of anchoring and swaying the vessel; J, J, double keels; K, the driving wheel; L, the pilot
45 house; M, the water level gage Fig. 6.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

I build a vessel in size and form suitable
50 for the purpose, having a hole or orifice at the center or near it in size and form suitable to receive the tube or well as represented in Fig. 3. Upon this vessel I place an engine and boiler or other motor, with suitable
55 form and power to perform the double work of either moving the vessel when required

or operating the machinery to perform the work of the "submarine operator." I next place upon this vessel the tube or well having the ovally expanded bottom suitably
60 braced that it may withstand the pressure of the water upon it; the object of this expanded form of the bottom of the tube is that in sandy or muddy bottom the sharp edge of this tube may be driven down into the sand
65 or mud by the power of the engine and machinery so as to form a water-tight bulkhead, that the water that is within the tube may be pumped out and thus access may be
70 had to the bottom within the tube for the purposes of search or for the work of building piers or other work.

If the bottom shall be found rocky, or too hard to admit of the penetration of the tube as above, then the cap piece Fig. 4, may be
75 hermetically attached to the top of the tube or well and the air pumped in so that by its increased density the water may be driven out, and so operators having passed in through the door *d*, (which is made duplicate
80 an inner and outer door made for the purpose) provided with suitable armor, air tubes, and implements, may follow down the ladder, *c*, as the water is driven out and so perform such search or other operation
85 as may be requisite; and if it may be necessary to increase the length of the tube or well in consequence of the depth of the water, well adjusted joints may be hermetically attached until the requisite length is
90 obtained, surmounted by the "cap piece" where it is necessary.

In accomplishing the work contemplated in this invention it may be necessary to alter or modify some part of the machinery as
95 set forth above without departing from the plan or design which is expressed in the language of my claim.

What I claim as my invention and desire to secure by Letters Patent is—
100

The arrangement of an apparatus for operating under water by means of a tube or well passing through the center of a vessel or near it to the bottom, for the purpose of
105 searching or working on the ground beneath substantially in the manner and for the purposes set forth.

GEORGE W. MARTIN.

Witnesses:

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E. H. BROWN.