

(No Model.)

2 Sheets—Sheet 1.

R. MENAUGH.

MANNER OF OBTAINING POWER BY RISE AND FALL OF TIDE.

No. 545,241.

Patented Aug. 27, 1895.

Fig. 2.

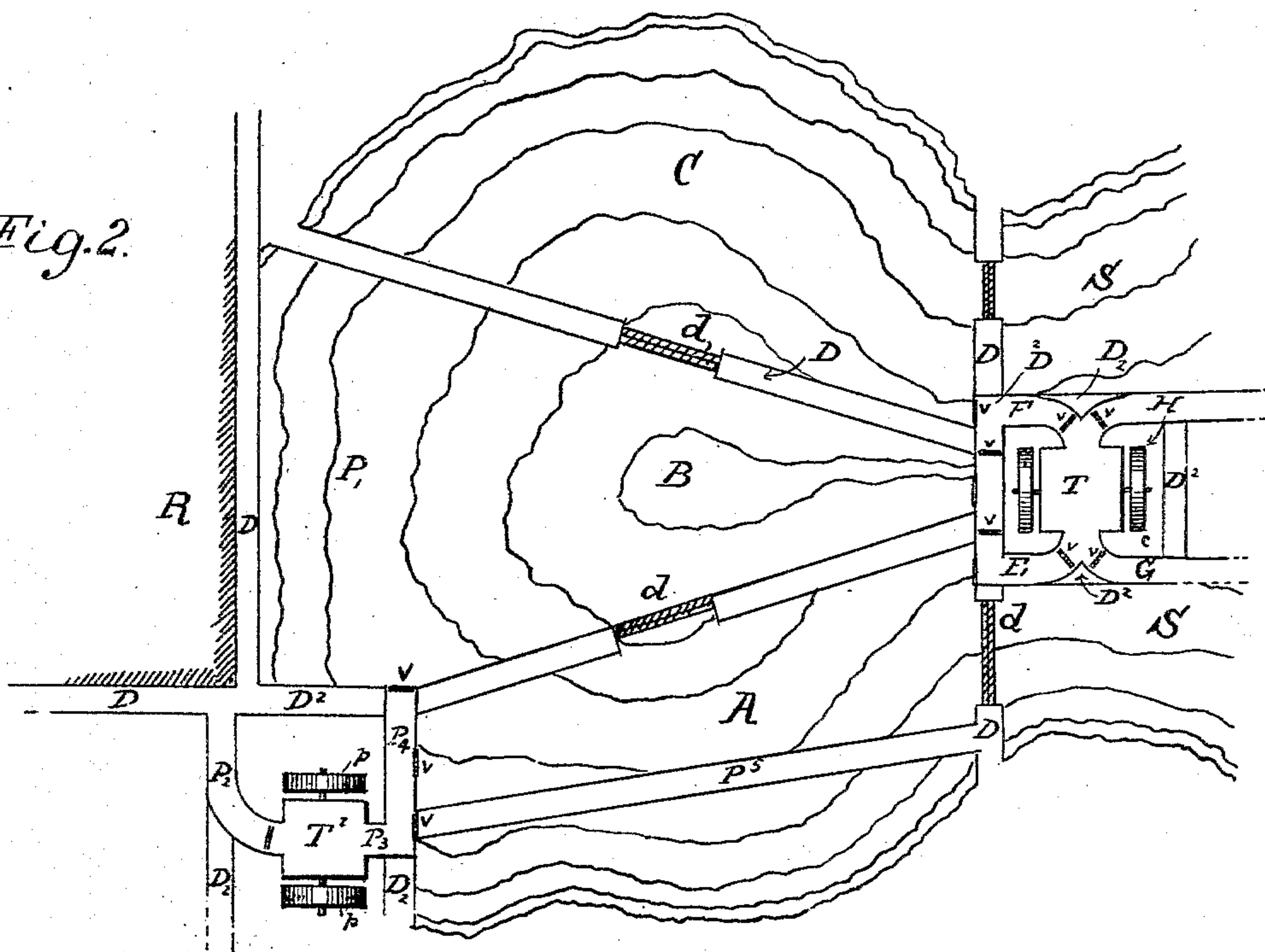
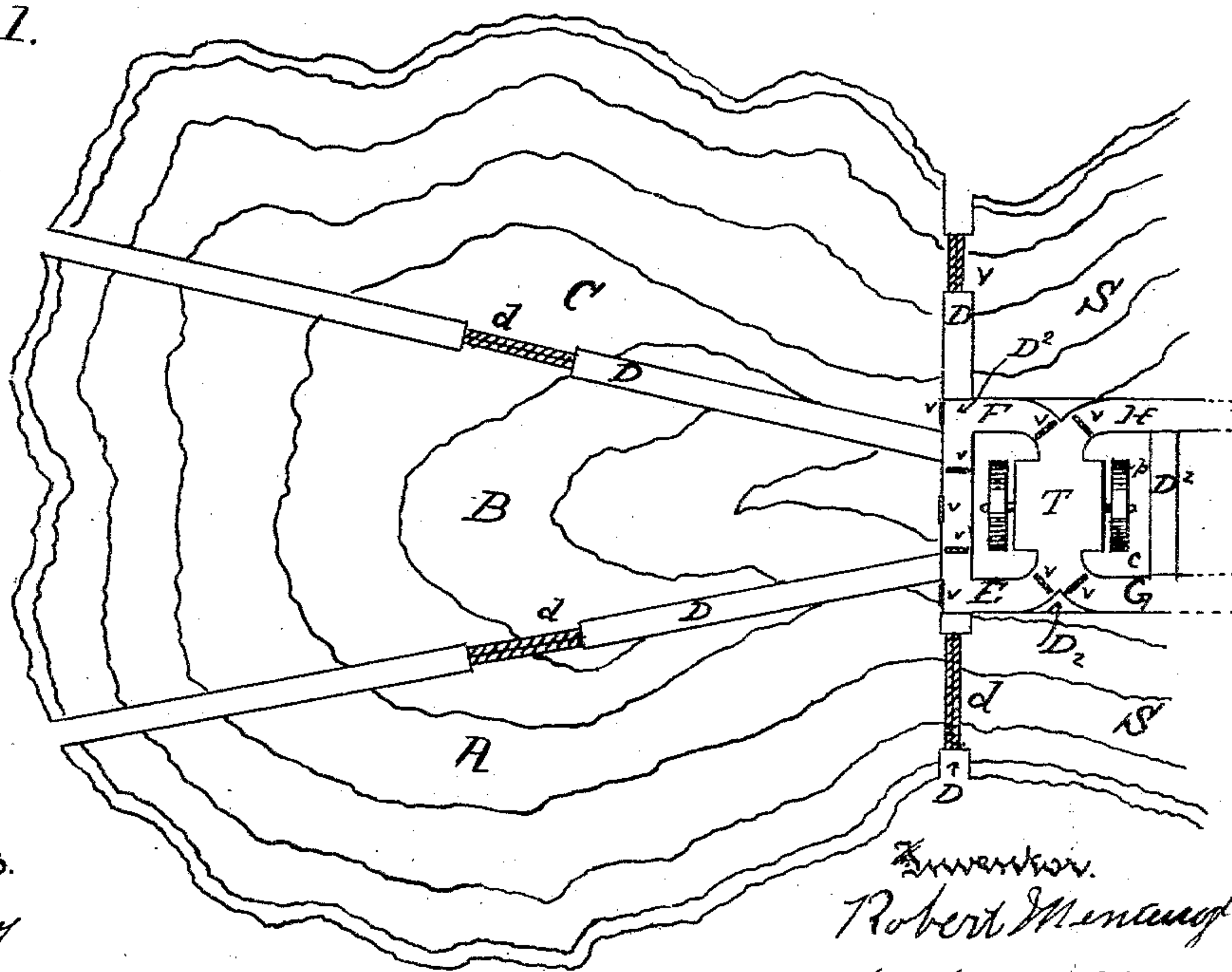


Fig. 1.



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(No Model.)

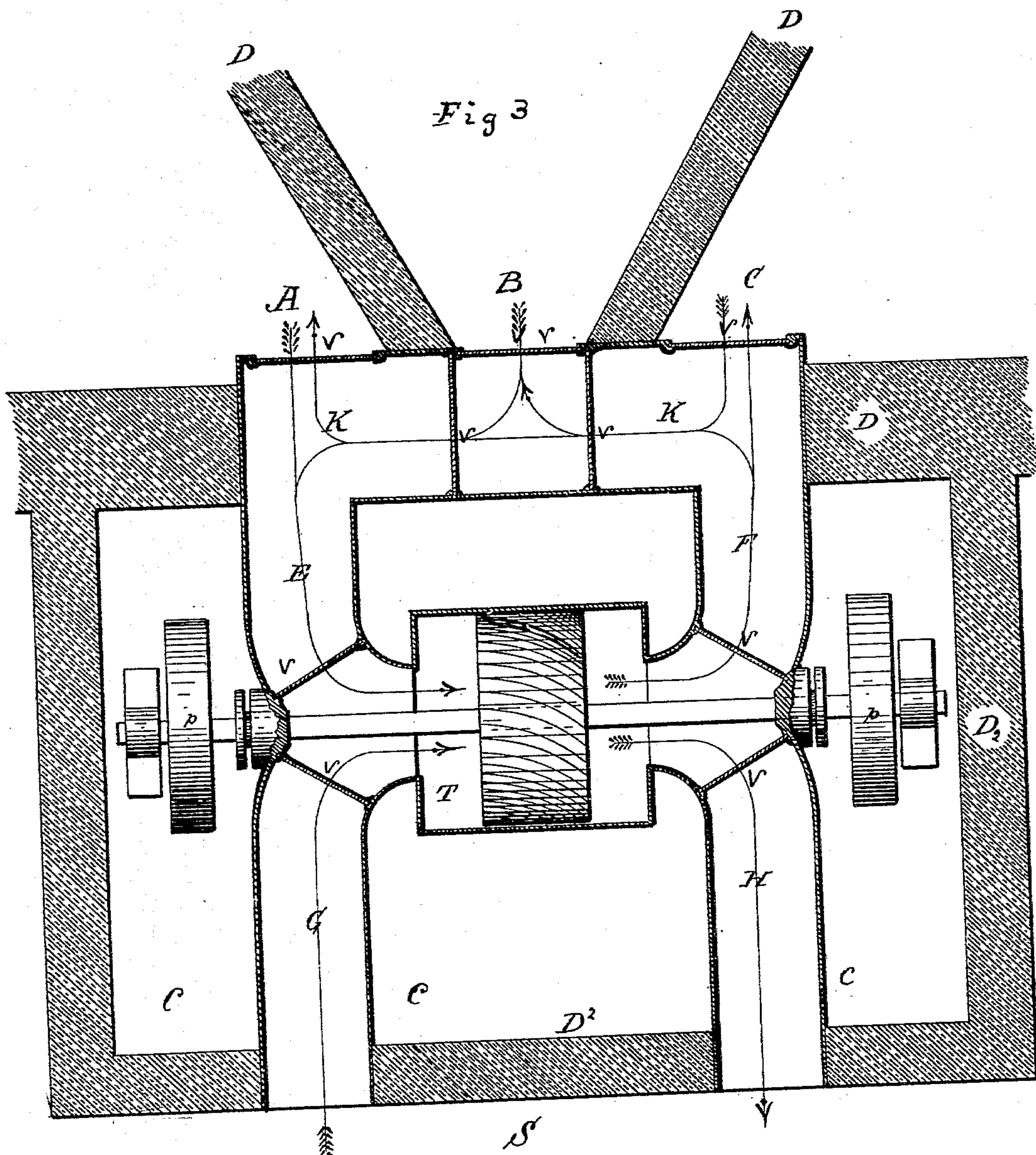
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MANNER OF OBTAINING POWER BY RISE AND FALL OF TIDE.

No. 545,241.

Patented Aug. 27, 1895.



Witnesses.

Frank Thompson
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UNITED STATES PATENT OFFICE.

ROBERT MENAUGH, OF VICTORIA, CANADA.

MANNER OF OBTAINING POWER BY RISE AND FALL OF TIDE.

SPECIFICATION forming part of Letters Patent No. 545,241, dated August 27, 1895.

Application filed June 28, 1893. Serial No. 479,086. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MENAUGH, a citizen of the United States, residing at Victoria, in the Province of British Columbia, Dominion of Canada, have invented certain new and useful Improvements in the Manner of Obtaining Power by the Rise and Fall of the Tide; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to use the same.

The object of my invention is to make use of the rise and fall of the tide for producing a steady power.

In the drawings, Figure 1 represents a direct power from or into the sea; and Fig. 2 shows a case where the sea is used to produce power for pumping the supply-reservoir full, which in turn produces power. Fig. 3 is a detail of the wheel-chamber, caisson, &c.

Similar letters refer to similar parts.

Let the shaky outline inclosing A B C represent the outline of the shores of a bay from the sea S.

D D are dams or walls built across the bay.

D² are the walls of a chamber or room C.

E F G H are four pipes leading from turbine or water wheel chamber T to the sea one way and to pipe, hollow dam, or caisson K.

K is a hollow dam or caisson connecting E and F and built in the wall or dam D across neck of water cut-off and containing waterways with working sluice valve or gates therein leading to and fro and separating each compartment.

I claim no special make of wheel.

V are valves or gates.

d are dock or canal gates.

P is a pulley or drum.

r are rotary or other pumps on main axle of turbine or water wheel.

R is a reservoir for water.

P' P², &c., are pipes, sluices, flumes, &c.

T² is the turbine or water-wheel box or chamber.

The bay is shut off from the sea S by the chamber C, together with the wall or dam D; also the bay is cut up into three or more compartments by the erection of D D across same. The end of the chamber C is hollow, or has a hollow pipe K across same, fitted with valves

or gates from each compartment, and also valves separating each. Within C is situated a turbine or other water-wheel with pulley or rotary or other pumps on main shaft *p* or *r*. Said turbine or water-wheel is supplied by a Y-shaped pipe E T G and F T H from each side, one arm of which is connected to the pipe K and the other runs to S in each case. Each arm of these pipes has a valve or gate V. From *r* pipes are connected to the sea for draft therefrom, and the water is conveyed thence through pipes to the reservoir R, from whence it runs through P² to turbine or water-wheel chamber T², where the power is produced and conveyed through *p*. The water finds vent by P³ to P⁴, where it can be discharged into one or more of the compartments through gates or valves, or into the sea through P⁵.

In each of the dams D are dock or canal gates, and, if necessary, a canal leading to same, so that if required a boat, barge, dredge, &c., may be readily passed through into either compartment.

The manner of working the apparatus is thus, beginning with B full and A C empty and tide at lowest: Open the various valves to allow the flow to be from B to the sea, taking the course B K E T H S. When the force is not sufficient, owing to the level in the compartment having fallen and that of the sea having risen, then change the course either from B into C by the course B K E T F C, if B lowers less quickly than S rises, or from the sea to C through the course S G T F C. By the time C is almost level with B, S will be far higher. Shut all these communications and open up course from sea to A by S G T F K A, when this is much reduced in power. Again run from sea to B by S G T F K B, and again S G T F K A, so that at full tide A and B are quite full—viz., level with sea—and the level of C is a good deal lower, so that as the tide falls you supply C by S G T F K C until much reduced, then shut C and make the course A K E T H S, and again change when reduced into C K E T H S, and again to A K E T H S until the tide is at its lowest. When empty A and C are ready to begin again. All of these combinations work turbine in same direction. If turbine shaft be connected to a pulley direct power may be used, or, as in Fig. 2, a rotary

or other pump may be affixed to shaft to force water drawn from the sea up into a large reservoir R, tank, or lake through a pipe P', from thence it is used to supply a second turbine or water-wheel by running through P² T² P³ P⁴, from whence it may flow through P⁵ to sea or into be valved into A or B, as may be required, and to be again passed through T into sea S. The pump on shaft of turbine T may be used to empty either of the compartments, forcing the draft-water up into reservoir R or out into the sea. Of course, when the flow of water has to be changed in directions certain valves or gates have to be closed and others opened. (See enlarged plan of machine.) Were two compartments only used, then the machine, or rather method, could not be continuously run.

I am aware that both Newhouse, in No. 189,643, dated April 17, 1877, and Mallory, in No. 174,692, dated March 14, 1876, use one cross-dam at neck, forming an inclosed lake, and also they use one, and can only use one, dam dividing the lake into two reservoirs, so I do not claim a single dam, as it would not work my apparatus, but I require two or more, making three or more reservoirs. When necessary I put canal or dock gates in said dams, so that each or either of my reservoirs may be used for a dock or for other purposes as cleaning; also valves may be fitted at ends of G and H next to sea, so that repairs may be effected, with E F G H clear and empty.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a tide power the combination of the reservoirs A, B, C, and dams D D D, and hollow caisson or water way K, together with a wheel or turbine running in a box or chamber T connected with cross channels E T H and F T G so that two channels ends G and H influx and efflux open to sea and the influx and efflux ends E and F open directly or indirectly to the reservoirs A B C, fitted with controlling valves or gates V substantially as described.

2. As a means of producing power by rise and fall of the tide, the combination of a dam D built across a bay and containing a caisson with valved waterways leading to and from each of the reservoirs formed by building two or more dams across said bay, and leading into valved pipes E F G H passing through turbine or water wheel running on shaft carrying one or more rotary pumps r r, together with a pipe running therefrom to an auxiliary reservoir R supplying a turbine or water wheel and thence running into one or more reservoirs or the sea substantially as and for the purposes specified.

Victoria, British Columbia, June 19, 1893.

ROBERT MENAUGH.

In presence of—

THOS. BURROUGHS NORRIS,

ROBERT GREAVES.