W. H. FOSTER.

DAMS FOR STORING AND UTILIZING TIDE POWER.

No. 188,348. Patented March 13, 1877.

Fig. 1

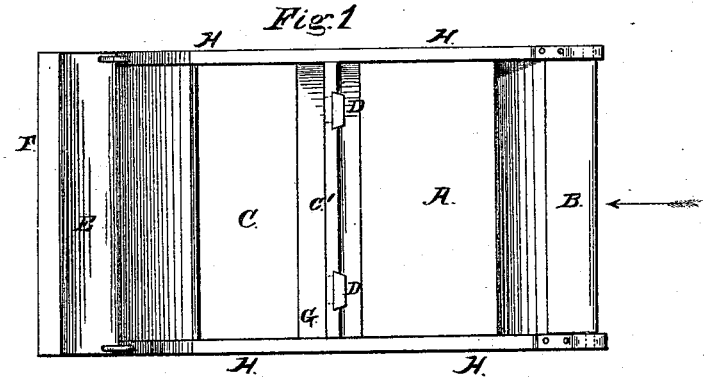
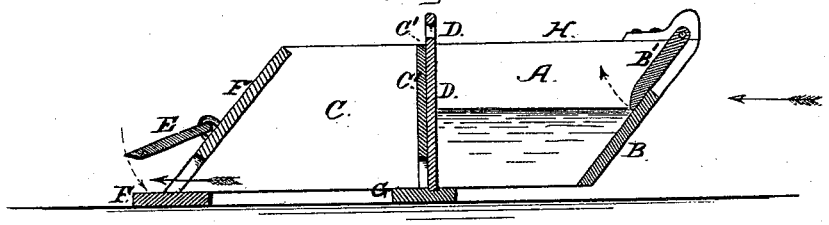


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM HENRY FOSTER, OF KELSEY, CALIFORNIA.

IMPROVEMENT IN DAMS FOR STORING AND UTILIZING TIDE-POWER.

Specification forming part of Letters Patent No. **188,348**, dated March 13, 1877; application filed August 24, 1876.

To all whom it may concern:

Be it known that I, WILLIAM HENRY FOSTER, of Kelsey, in the county of El Dorado and State of California, have invented an Improvement in the Construction of Dams for Storing and Utilizing the Power of the Tides; and I do hereby declare that the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which my invention most nearly appertains to construct and use the same.

This invention consists of a reservoir and basin formed by constructing three dams across an arm or estuary of the sea.

The middle portion of the upper arm is provided with an overlapping apron, which opens inwardly when the tide is at its flood, and closes automatically when at its ebb.

The middle dam is provided with gates, which open into a basin which receives the water from the reservoir, that drives the wheels, and by which power is obtained.

The mouth of the lower dam is provided with an apron or gate, which opens outwardly during ebb-tide, and closes automatically by the incoming tide, all of which will hereinafter more fully appear.

Referring to the drawings, and to the letters of reference marked thereon, Figure 1 is a plan of my invention; Fig. 2, a longitudinal section.

A represents the reservoir, and B the upper dam, the mouth of which is constructed inclining from the top to its base, as shown, and an apron, B′, with an overlapping edge, is pivoted at each side. This apron opens inwardly at flood-tide, and closes automatically at ebb-tide.

A dam or wall is constructed at C′, which extends to the opposite shores of the estuary, and thus the water which flows into the reservoir during the inward or flood tide is held in reserve. The dam C′ is provided with a projecting wall, G, which serves the purpose of a step for the water-wheels from which power is derived, the water which drives them being received through the vertical gates D D.

C represents a basin, at the lower end of which is constructed a dam, F, which inclines outwardly or down the stream, and is provided with an apron, E, which opens outwardly, and is kept in that position during low-tide; but as the tide sets back this apron is also closed automatically, and prevents the tide-water from rushing into the basin.

The dam A may be carried or constructed up the estuary to any desired distance, and so as to inclose a large body of water, and the dam F be carried down the stream or estuary as far as desired, so as to provide sufficient space in the basin C to receive and hold the water which passes through the gates D D′ during intervening tides.

It should here be observed that ordinarily the water to be employed is received from some other channel, inlet, or estuary from the sea than that in which my device is constructed, as this channel is intended only as an outlet for the water employed.

In its operation, let H H in the drawings represent the shores to which the dams extend. Basin C having been deprived of its water and the entrance closed, the incoming tide will fill the reservoir A, when the gates D′ D′ are opened, and the water passes through the openings upon the wheels and falls into the basin C, which has sufficient space to receive all that passes through the gates during that tide from the reservoir above. The apron B′ of this reservoir, having been closed, keeps the water from running back into the estuary above.

Thus it will be seen that great power is obtained by my construction of dams for storing the tides, which would otherwise remain dormant and unutilized.

I do not claim, broadly, the invention of means for storing the power of tides so as to get rid of the back-flood, and to run the water-wheel while the tide is flowing in an opposite direction to that of the wheel. Neither do I claim the use of an undershot wheel for this purpose, nor the broad invention of a reservoir to receive the water after it has passed the wheel, and prevent the back-flow of the tide from reaching and affecting the operation of the said water-wheel; but,

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

The means for utilizing the power of tides described, consisting of the dam B, inclined apron B′, dam C′, vertical gates D, projecting wall G, dam F, and inclined apron E, the several parts forming the reservoir A and basin C, arranged side by side, constructed, arranged, and combined substantially as described and shown.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 28th day of July, 1876.

WILLIAM HENRY FOSTER. [L. S.]

Witnesses:
C. W. M. SMITH,
PHILIP MAHLER.