G. F. STICKNEY.

SPILLWAY.

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991,907. **Patented May 9, 1911.**

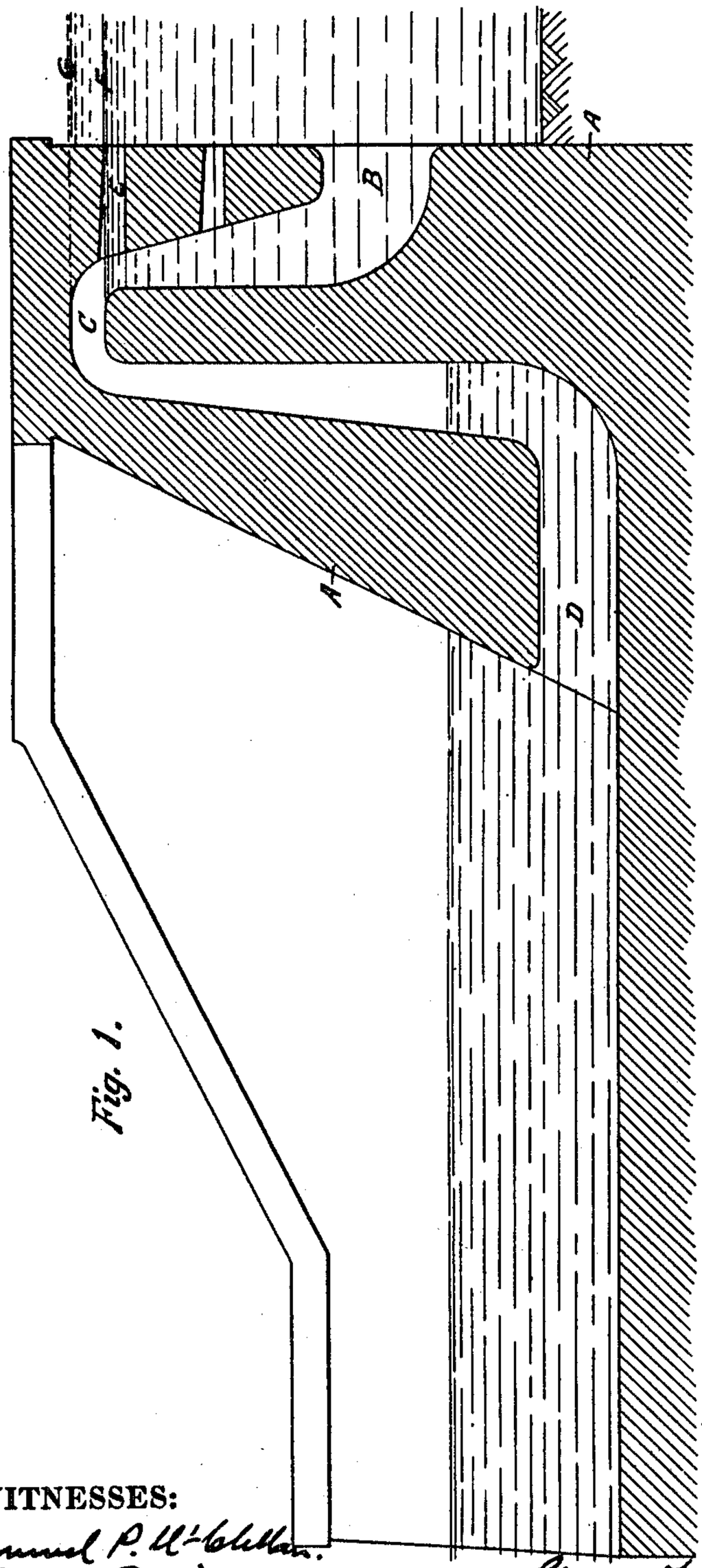

Fig. 1.

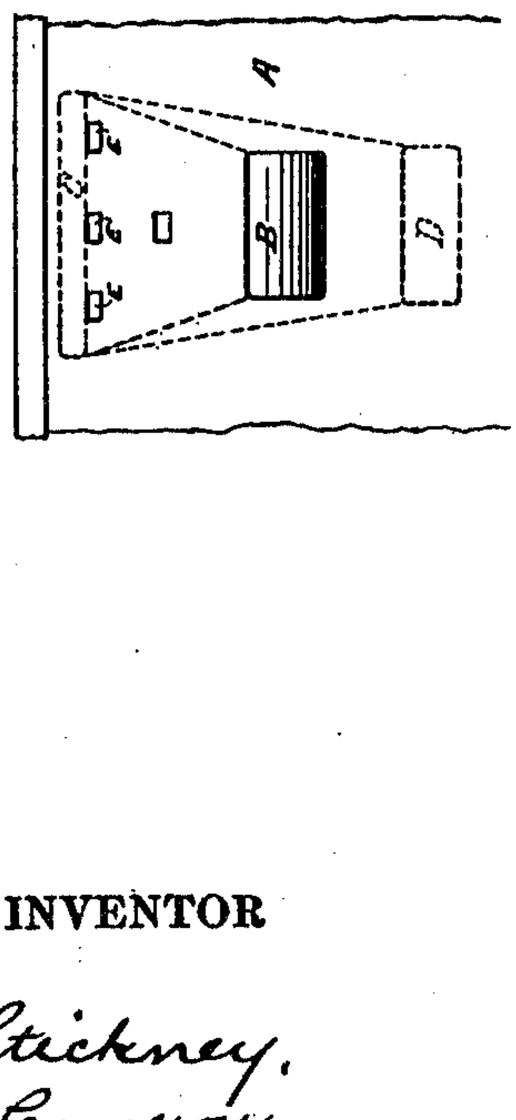

Fig. 2.

WITNESSES:

Samuel P. McClellan.

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INVENTOR

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UNITED STATES PATENT OFFICE.

GEORGE F. STICKNEY, OF ALBANY, NEW YORK.

SPILLWAY.

991,907. Specification of Letters Patent. Patented May 9, 1911.

Application filed March 20, 1911. Serial No. 615,736.

To all whom it may concern:

Be it known that I, GEORGE F. STICKNEY, a citizen of the United States of America, residing at No. 28 Lancaster street, city of Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Spillways, of which the following is a specification.

My invention relates to spillways, and the object of my invention is to provide a siphon spillway by means of which the water at a dam or reservoir may be quickly discharged when the storage capacity is exceeded and the surface level is raised above a certain fixed degree; together with such other elements and combinations as are hereinafter more particularly set forth and claimed. I accomplish these objects as illustrated in the accompanying drawing, in which:

Figure 1 is a cross section. Fig. 2 is a front elevation of a dam provided with my invention.

Similar letters refer to similar parts throughout the several views.

The dam, A, constructed of concrete or other suitable substance, is provided with an inverted U-shaped tube or conduit, BCD, extending through the dam, A, having its inlet, B, and its outlet, D, below the low water plane, and the highest part of the conduit, C, at or below the high water level. The inlet end, B, is preferably flared out to provide an easy entry for the water. It may be placed at any desired location below the low water surface, preferably several feet below to avoid the entry of floating drift. The crown or highest part, C, of the siphon must be placed betwen the low and high water planes, preferably with its lower limit at the low water level and its upper limit at or below the high water level. The outlet end, D, may be placed at any desired location below the low water level and preferably as low as circumstances will admit, not exceeding thirty-four (34) feet below the crown of the siphon.

The siphon may be made of wood, metal or other suitable material or may be constructed in the masonry of the dam. I place an air vent, E, immediately below the low water level, F..

G, is the high water level, the level which starts the siphon in action.

The operation of my invention is as follows:—As the water level above the dam rises the vent, E, is submerged and this air passage is sealed. Water rises in the upper leg of the siphon, BC, and overflows at the crown, C. As the rise of the water surface progresses, the flow through the siphon increases, the air in the crown, C, is displaced and is carried off by the flowing water until finally a stage is reached where the air is entirely expelled from the siphon, whereupon the siphonic action is set up and the velocity of flow through the conduit is largely increased. The water surface above the dam gradually falls on account of the discharge in the siphon and a stage is finally reached where the vent, E, becomes exposed and air flows into the crown of the siphon, stopping the siphonic action, and, as the water surface is now below the lowest part of the conduit at the crown, C, the flow of water entirely ceases.

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

1. A spillway comprising a dam; a closed conduit siphon of an inverted U-shaped form when in position, the crown being between the low and high water planes; said dam provided with an air passage extending from at the low water level to a point in the siphon near the crown thereof.

2. A spillway comprising a dam; a siphon therein, its crown being between the low and high water level; the inlet placed well below the low water level and provided with a flaring mouth; an air vent extending through the dam from near the crown to a point at the low water level, substantially as described.

3. In a spillway the combination of a dam, a conduit, U-shaped in form, placed therein, one leg of the conduit lower than the other and one extending through the dam on one side, the other on the opposite side; an air vent near the crown of the conduit extending through the dam to a point at the low water level, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

GEORGE F. STICKNEY.

Witnesses:

LOTTIE PRIOR,

FREDERICK W. CAMERON.