

U. G. McCOY.
 UNDERFLOW GRAVITY DAM.
 APPLICATION FILED JAN. 23, 1912

1,034,269.

Patented July 30, 1912.

Fig. 1

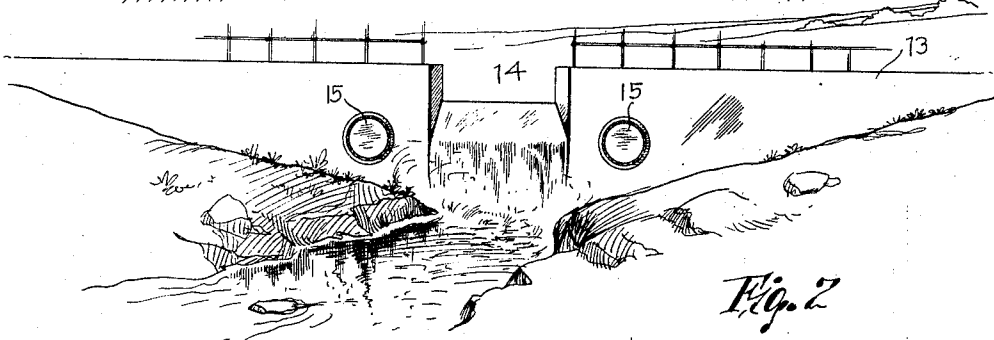
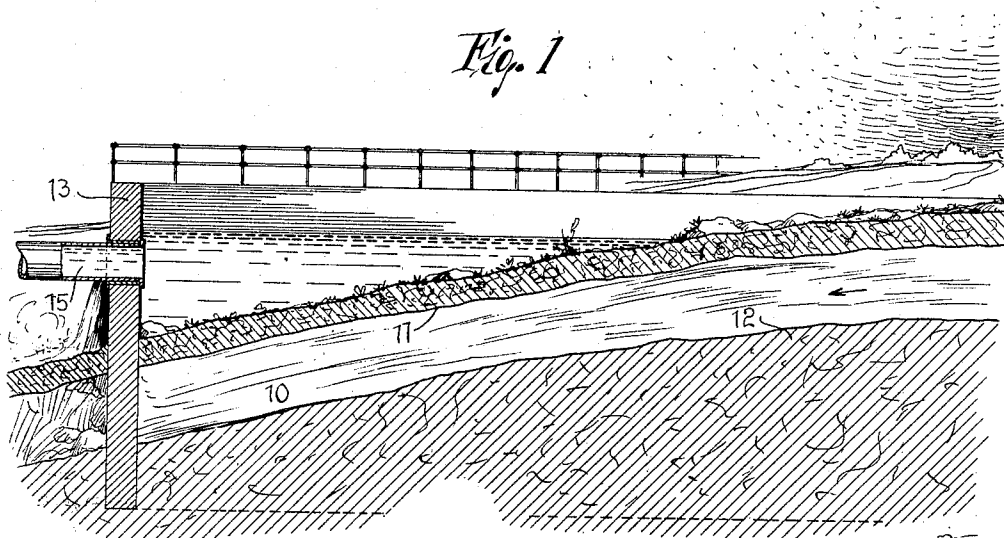
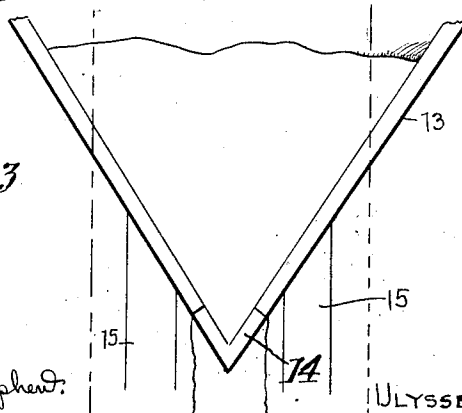


Fig. 2

Fig. 3



WITNESSES

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UNDERFLOW GRAVITY-DAM.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ULYSSES GRANT MCCOY, a citizen of the United States, residing at Taskee Station, in the county of Wayne and State of Missouri, have invented certain new and useful Improvements in Underflow Gravity-Dams, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to hydraulics and has special reference to an apparatus for raising underground water to the surface through impounding the same.

The principal object of the invention is to provide a novel apparatus for utilizing the force of gravity to raise underground water to the surface so that the same may be impounded and used for irrigation, and other purposes.

In the accompanying drawings like characters of reference indicate like parts in the several views, and Figure 1 is a longitudinal section through an underground water-bearing stratum with the soil above and impervious stratum below, the section showing the apparatus used to carry out this process in position. Fig. 2 is a front view of such an apparatus. Fig. 3 is a plan view of such an apparatus.

It is a well-known fact that in many sections of the country, especially in arid sections, water may be found at a certain depth below the surface permeating one or more strata of the rock or earth, and almost in every instance the water permeated strata lies above an impervious stratum of clay, rock, or the like. Now it is rare that there is not some dip in one direction or the other to this water bearing stratum so that the water in the stratum forms an underground stream.

In Fig. 1 there is shown a water-bearing stratum 10 having the usual superimposed soil and other material above as indicated at 11 and an impervious stratum 12 below.

It will be observed that the stream flow of the water bearing stratum is in the direction of the arrow or down hill, as is natural. In order to raise this water to the surface of the ground without pumping I select a suitable valley wherein the water-bearing stratum dips as indicated in Fig. 1 and dig a trench which is V-shaped in plan near the apex of the V downward and the sides going

out toward the sides of the valley. This trench is dug down through the water bearing stratum and somewhat into the impervious stratum to prevent leakage around the base as will be hereinafter fully explained. A concrete or other dam is then erected in this ditch and the cross section of this dam may be of any suitable shape to conform to the varying conditions of the soil, etc.

The dam herein shown is indicated at 13 and the cross section forms a plain rectangular wall which is suitable for low heads of water. It will, of course, be obvious that where the height is greater the form must be varied in accordance with engineering principles.

This dam is carried down to the bottom of the ditch so that no water can pass beneath it as noted above. Above the ground the dam is carried up until the top is well above the highest point of the water bearing stratum from which it is desired to collect the water. The wings of the dam are carried out sufficiently to entirely interrupt the underground flow whenever possible. For instance, let it be supposed that the underground stratum is approximately one-half mile in width. Then the apex of the dam might be located two miles below the highest point of the underground stream and the wings of the dam carried out until separated at their upper ends the half mile necessary to collect the water of the stratum.

The dam is provided at its lower end with the usual spill water 14 and from points adjacent the apex run pipes 15 for the conveyance of the collection of water to irrigation ditches, farm houses, or the like.

In the operation of the device water flowing down the water bearing stratum is interrupted in its course by the dam. It will then naturally seek its level and will rise through the pervious overlying stratum until the water at the apex of the dam is at the same height as the water at the highest point where it is desired to impound the same. There will thus be formed a pond owing to the forcing of this water through the overlying stratum and the water in this pond can be utilized for such purposes as may be desired.

It is obvious that different forms of a dam may be used since the difference in the contour of the land, dip of the underground

tream, and other elements will enter into consideration when the precise form of the dam is decided upon.

Having thus described the invention, what
5 is claimed as new, is:—

A dam for underground waters consisting of a V-shaped structure sunk in the earth a sufficient distance to intercept an underground stream, the mouth of the V being
10 directed up-stream, the point of the V being

elevated above the surface of the earth and provided with openings therein, and a notch at the apex thereof, all as and for the purposes described.

In testimony whereof I hereunto affix my 15 signature in presence of two witnesses.

ULYSSES GRANT MCCOY.

Witnesses:

JOHN D. HOPPER,

E. L. SMOD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."