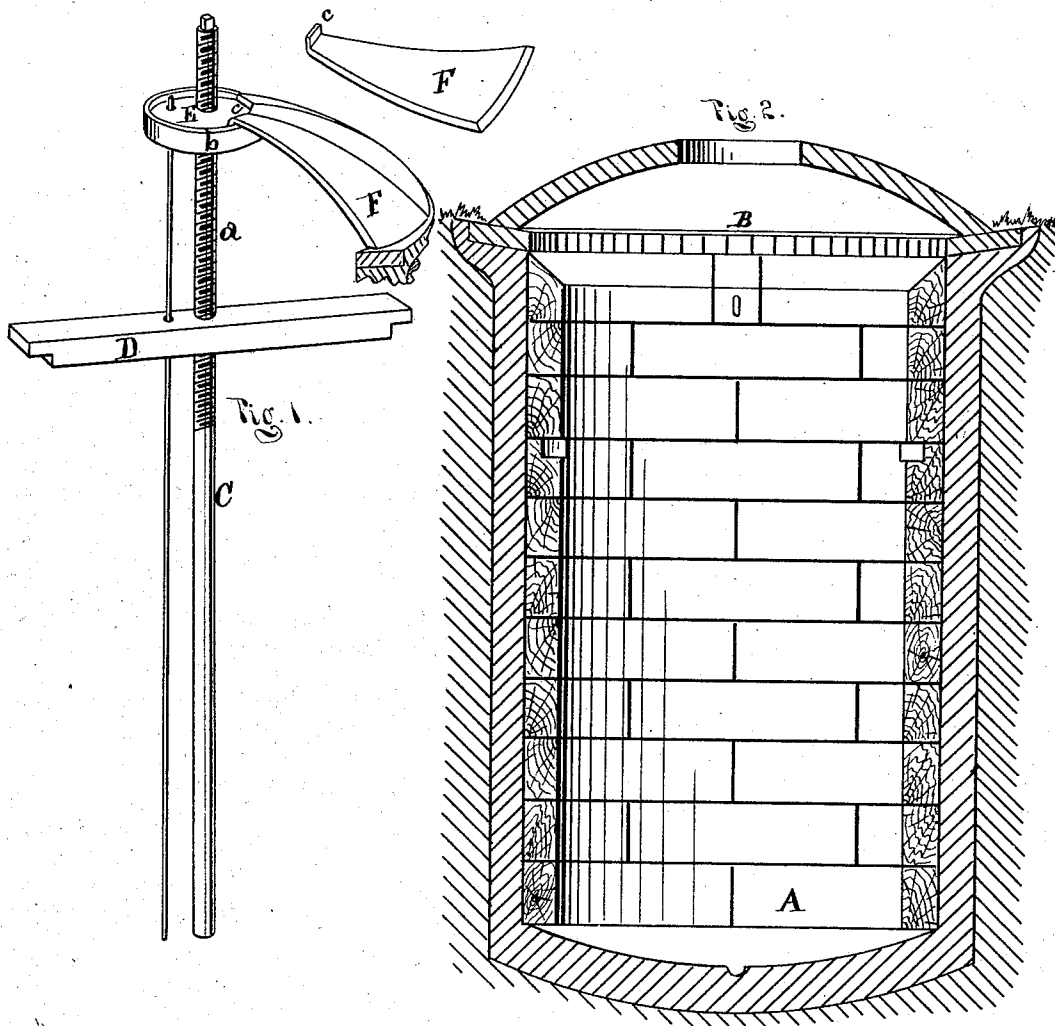


J. H. WINES.
Modes of Building Cisterns.

No. 154,740.

Patented Sept. 1, 1874.



ATTEST:

W. F. Everts.
H. Sprague

INVENTOR:

James H. Wines.
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UNITED STATES PATENT OFFICE.

JAMES H. WINES, OF DEXTER, MICHIGAN, ASSIGNOR TO HIMSELF, PATRICK DOLAN, AND JOHN H. DOLAN, OF SAME PLACE.

IMPROVEMENT IN MODES OF BUILDING CISTERNS.

Specification forming part of Letters Patent No. **154,740**, dated September 1, 1874; application filed November 19, 1873.

To all whom it may concern:

Be it known that I, JAMES H. WINES, of Dexter, in the county of Washtenaw and State of Michigan, have invented an Improvement in Method of Building Cisterns, of which the following is a specification:

The nature of this invention relates to a new and economical method of constructing cisterns, or walling up wells; and its object is to enable the builder to perform his work more rapidly and more economically, and have a more durable wall, and one less liable to crack and leak.

Figure 1 is a perspective of the center pole, and a portion of the curved segments employed in making the arch over the cistern or well. Fig. 2 is a vertical section of a cistern before the curbing is removed.

Like letters refer to like parts in each figure.

The well or excavation should be made somewhat larger than the diameter of the cistern will be when finished. After being excavated to the proper depth, a course of curbing, A, is inserted at the bottom of the excavation. This curbing is made in sections, each segment being about one foot high, and of any desired or convenient length, and having proper headers B laid on the top of the grouted wall. One section high is placed in the bottom, and the space between the outside of the curbing and the wall of the excavation is then filled with a grout made of cement, gravel, and water, mixed to a proper consistency. Then another section of curbing is added, one after the other, until the top is reached, the space behind each section being filled with the grout before the next section is added. When the top is reached, a course of headers, B, is laid on the grouted wall (which may be of any desired thickness) and adjacent ground, so as to cover the wall. Then the center pole C is placed in position, where it is held by means of the guide D,

through which the said pole passes, and the ends of this guide are inserted between the opposite sections of the curbing, as shown. This center pole, the lower end of which is suitably stepped in the center of the bottom of the cistern, is provided with a thread, *a*, and with a circular nut, E, provided with an upwardly-projecting flange, *b*. Then the curved sections F, one of which is shown in perspective in a detached figure, are laid, the wide end resting upon the heading on top of the grouted wall, and the narrow ends resting upon the nut E, which forms a bearing for that purpose. The inner ends of these sections F are provided with a downwardly-projecting flange, *c*, designed to engage with the flange *b* on the circular nut, to prevent said sections from slipping out of place. A wrench is then applied to the top of the center pole, and said pole turned in the proper direction to raise or lower said nut until these sections F are in the desired position to give the necessary arch to the top.

In this operation the nut is prevented from turning by the engagement of the flanges, as hereinbefore described. Then the arch may be turned with brick, laid dry up to the ends of the sections F, and the arch grouted; or it may be made of the same material as the walls, or laid in stone.

After the arch is turned, as described, and "set," the center pole is rotated in the proper direction to lower the nut, until the sections F will fall to the bottom of the cistern, their edges being beveled in opposite directions to facilitate this action. Then remove the center pole, go down into the cistern, take out the arch-sections F, and then remove the curb-sections, which may be provided with keys to hold them in place, and so arranged that, by loosening them, the curb-sections may be easily taken out. Then smooth the inside of the wall with a little fine mortar, put in the bottom with grout, and the

cistern is complete, and the various devices employed are ready for use in constructing another.

I am aware that cisterns made with grouted walls, and with arch tops, are in use. I do not claim, broadly, therefore, such a cistern; but

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

1. In combination, the curbing A, made in sections, and headers B, laid in courses upon

the top of the grouted wall, all constructed and arranged substantially as described and shown.

2. The center pole C, provided with circular flanged nut E, in combination with the arch-forming sections F, substantially as described, and for the purposes set forth.

JAMES H. WINES.

Witnesses:

THOS. S. SPRAGUE,
H. S. SPRAGUE.