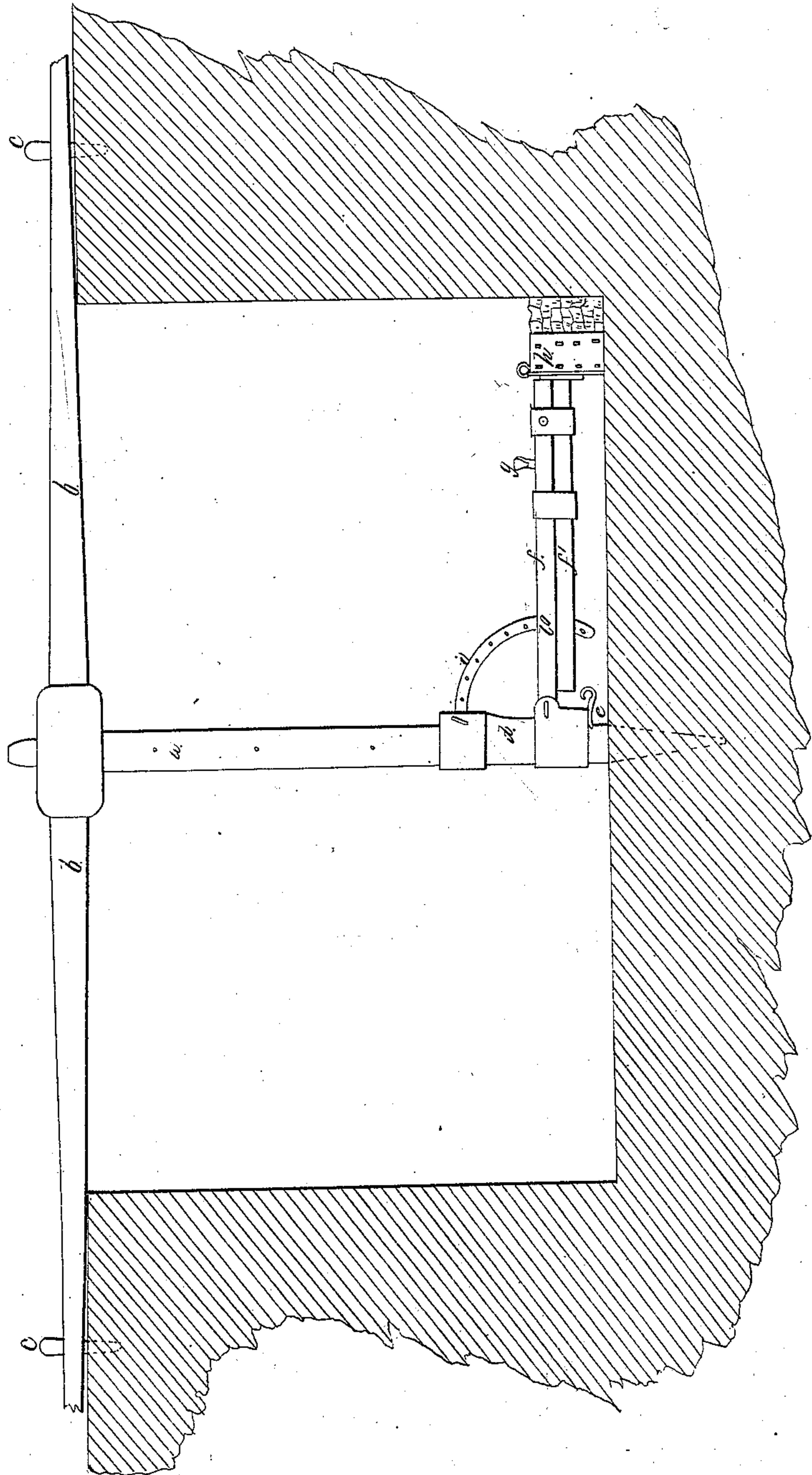


*O. Owen,*

*Constructing Cisterns,*

*N<sup>o</sup> 4,798,*

*Patented Oct. 7, 1846.*





# UNITED STATES PATENT OFFICE.

ORLANDO OWEN, OF BURLINGTON, VERMONT.

## APPARATUS FOR CONSTRUCTING CISTERNS.

Specification of Letters Patent No. 4,798, dated October 7, 1846.

*To all whom it may concern:*

Be it known that I, ORLANDO OWEN, of Burlington, in the county of Chittenden and State of Vermont, have invented a new and  
5 useful machine, which I denominate the "rotary curve," to be employed in constructing water-cisterns, and that the following is a full, clear, and exact description of the principle or character thereof which distinguishes it from all other things before  
10 known, and of the manner of making, constructing, and using the same, reference being had to the accompanying drawing, making part of this specification, which gives a vertical elevation of the machine within a cistern, one-half of which is supposed to be removed.

The usual mode of building cisterns is to form an inner and outer curve or mold of  
20 wood (the outer one extending only to the top for the cylindrical part of the cistern) with the space between equal to the thickness of the wall which is formed by pouring in small stones and hydraulic cement until it reaches the top of the outer curve, it is  
25 then carried for a short distance on the top of the inner curve to narrow the opening, and the whole suffered to dry, which necessarily takes much time, as the curves exclude the air, and the cement dries very  
30 slowly; but when it is dry the inner curve can only be removed by breaking it to pieces. The object of my invention is to avoid this inconvenience, and to save much of the time required for drying the wall; and this I  
35 effect by means of a segment curve attached to one end of an arm connected with a central standard in such manner that it can be moved around the standard, and carried up  
40 and down, and inclined to form the top—the arm being made in two parts that slide on each other to adapt the segment curve first to enable the operator to trim the hole in the earth to the required diameter for  
45 the outside of the cistern, and then to the inner diameter thereof. The two parts of the arm slide on each other and can be secured at any desired point by means of a set screw, and it is connected with the central  
50 standard by means of a ferrule to which it is jointed, which ferrule can be held at any desired elevation by a pin passing through holes in the standard; and for the purpose of giving the arm any desired inclination, it is mortised and plays on a sec-

tor attached to the upper part of the ferrule and provided with holes and a pin.

In the accompanying drawings (*a*) represents a standard pointed at the lower end so that it can be driven in the earth at the  
60 bottom of the hole in which the cistern is to be built, and provided with a cross bar (*b*) at top ends of which are secured to the surface of the earth by means of pins (*c, c*). On this standard there is a ferrule  
65 (*d*) that slides and turns on it freely, and held at any elevation by means of a pin (*e*). To the lower part of this ferrule is jointed an arm made in two parts (*f, f'*) the one  
70 (*f*), having loops in which the other part (*f'*) slides so that it can be secured and held in place by means of a set screw (*g*). And to the outer extremity of the part (*f'*) is attached the segment curve (*h*) made of  
75 wood faced with metal, the extent of its surface is arbitrary. To the upper end of the ferrule is attached a metallic sector (*i*) which passes through a mortise in the part  
80 (*f*) of the arm so that it can be held in any desired inclination by a pin (*l*) that passes through a hole in the arm and sector.

The method of operating with this apparatus is as follows: A hole is dug in the earth of the required depth and nearly the  
85 required diameter; the standard is then driven down in the center thereof and in a vertical position and there held by the bar (*b*) secured to the earth by pins. The segment curve is then set to the required  
90 diameter for the outside of the cistern, and the hole trimmed to it all around and from top to bottom. The curve is then set to the inner diameter of the intended cistern, and at the bottom, and the stones and cement  
95 poured in between it and the earth, and when set, the curve is moved around through a distance equal to its length, that is filled up, and so on to the end of the circuit. The curve is then raised and the pin in the  
100 standard put in one hole higher up, and the same operation carried on until the top of the cylindrical part of the cistern is reached. The ferrule is then let down a little and the arm inclined for the purpose of turning the  
105 curved top to narrow in the aperture of the cistern—the only difference between this part of the operation and that already described consisting in the letting down the ferrule as the segment is elevated, to form the arched  
110 top. When all is completed the pin that

connects the arm with the sector is taken out and the apparatus removed. The segment curve should be so connected with the arm as to afford the ready means of taking  
5 it off, and substituting another of a different curve.

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

The combination of a segment curve  
10 with the arm, ferrule, and standard for the

purpose and in the manner substantially as described, and these thus combined, also in combination with the sector for forming the arched top of the cistern, substantially as described.

ORLANDO OWEN.

Witnesses:

LUCIUS E. CHITTENDEN,  
WYLENS LYMAN.