(12) **United States Patent**
Kidder

(10) **Patent No.: X9321**
(45) **Date of Patent: Jan. 15, 1836**

(54) **WELLS, COVERS OF**

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Lewis Riddle's

Letters Patent

The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Lewis Riddle himself of his improvement and the application of the same is the manner to be secured by them.

The invention which he calls the well securer is formed in four parts, which for the sake of description he calls, 1st The wall which is circular and of any desired dimensions required for strength and for being built any height above ground, and at or near a certain height of the stone wall already raised to contain height and in the ordinary way. 2d The neck with a circular aperture or other shape in the centre large enough to admit a person, and a person to pass through by its sides, the neck rests upon the top of the wall. 3d The neck which a ring about four inches thick, eighteen inches high and of the same dimensions the aperture above mentioned, around which resting on the neck it is erected

4th The cover which is an arch or dome in two parts, with an aperture in the centre of the same size as the passage to which it is made exactly to fit. The cover rests upon the neck. The first three parts are fixed and united forming one mass. The last is detached and moveable. They are thus constructed. The well being walled with stone in the ordinary way to any desired height say sixteen feet of the surface of the ground or if the wall has been previously walled to the surface of the ground (the wall should be secured to the required depth) and the top of said wall being level upon it all round as a centre the circular mould in form of a cask two inches half feet height. The workman then standing inside on a stage moves across the well for that purpose, over the mould and with a trowel commences the cement wall upon the top of the stone work by laying upon the surface of the mould a bed

a layer of cement mortar first prepared for this use, thus forming the first section of the wall about four inches thick and five inches high or of other dimensions if required, an instrument which done the earth in the circle around is firmly pounded, filling the space between this section of the wall and the sides of the well pit. In the same way is moulded another section of the wall uniting with the first, and the earth as before thrown in and packed. In this manner the operation is continued until the wall is raised to the top of the mould when it is complete. The pump if not before should now be introduced and fixed perpendicular in the centre after which the mould should be removed and a stage constructed by placing on the first mentioned stage a beam across the well, around the pump with about two inches of the top of the cement wall, on this stage a mound of earth is erected and firmly packed in the form of an arch or dome, with an elevation in the centre around the pump of about eighteen inches above the top, and within the interior circumference of the cement wall. This earth in dome forms the mould for the second part the arch. On the top of this mould is placed centrally in a horizontal position around the pump a ring of sheet iron or other material, about twenty four inches wide and twenty four in diameter, made moveable. This ring forms the aperture into the well, and at the same time the inside mould for the third part or neck which may be of any other shape if desired. Said ring being fixed the second part or arch is constructed upon the mould about four inches thick or the brick required and extending from the exterior of the ring all over the mould and to the exterior of the wall, upon the top of which when the mould is removed it will rest. Another similar ring is now placed horizontally upon the arch outside of the first ring and parallel with it at the distance of three or four inches. These rings are placed from the mould on which is con-

the neck of which they determine the dimensions. The neck is cast by filling the space between the rings with the cement mortar uniting with the arch first formed. Thus are made the first three parts which are now wanted more easy. To form the cover fill up the space around the pump between it and the first mentioned ring with earth which raise in the form of an arch or dome elevated about six inches above the top of the neck. This constitutes the mould for the cover. Now lay upon the top of the neck a covering of thick tarred paper or other material to form a separation between the neck and cover. and in order to have the cover in two parts insert perpendicularly in the mould on opposite sides of the pump two strips or pieces of sheet iron extending from the pump to the exterior of the neck with their upper edges arched and as much above the mould say three inches as the thickness of the cover is to be. This done cast the cover externally from the pump to which this moulded to the exterior of the neck upon which it is to fit and rest inserting as you advance at proper places suitable metallic fastenings and handles for the purpose of fastening or removing the cover at pleasure.

The well secure is now formed and time being allowed for the cement sufficiently to set or harden, the earth may be thrown in upon the arch and against the neck level with the surface of the surrounding ground. The cover which with about six inches of the neck is above the ground may now be taken off and the moulds and the stages from the inside removed. after which replace and fasten the cover and you have completed the well secure, a perfect defence against the influx of water and the depredations of vermin

The principle of this improvement consists in the construction or hydraulic cement of a protecting cover and sides to wells cisterns reservoirs, and other vessels in the

earth above by the water within them should be secured against the influx of surface water and the intrusion of vermin in the mode and by the means substantially as above described

Witnesses
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