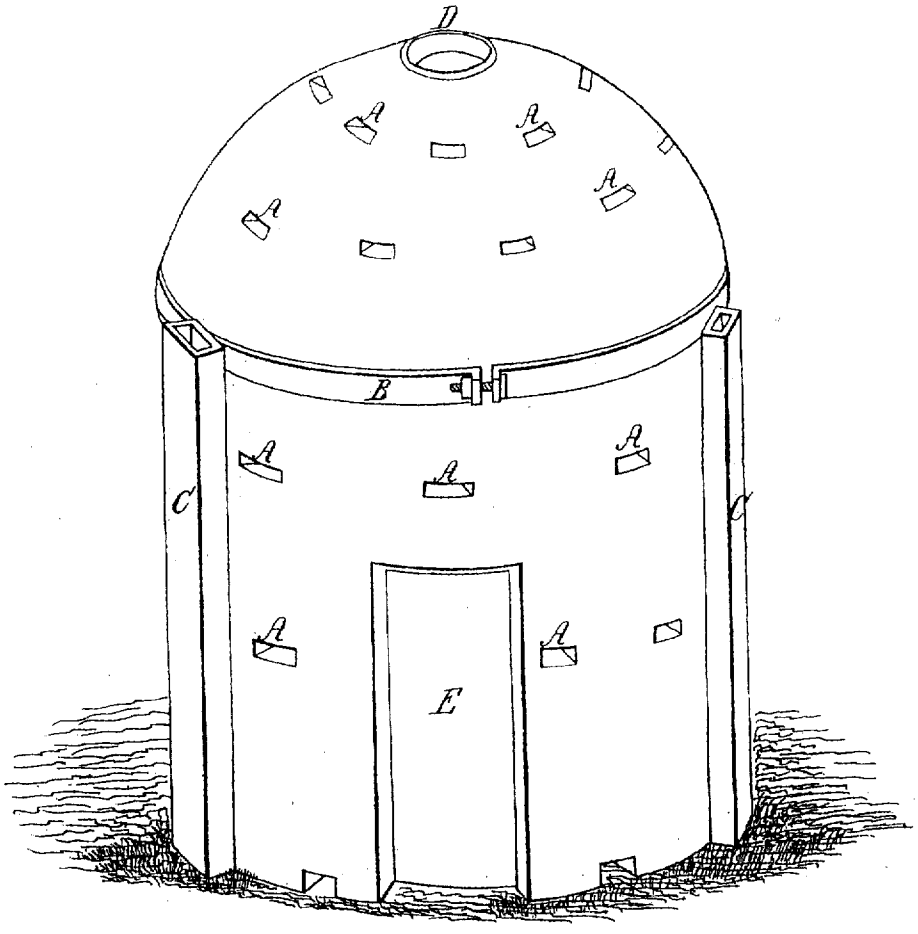
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I. Doolittle,

Charcoal Kiln.

Patented Dec. 14. 1829.



X 5753 12-14-1829 xxx.

Isaac Doolittle, Bennington Vermont.

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 Isaac Doolittle, himself, of his improvement in the art of burning wood for the manufacture of charcoal.

To all persons to whom these presents shall come. Isaac Doolittle of Bennington, in the County of Bennington & State of Vermont, sends greeting. Be it known that the said Isaac Doolittle, having invented, contrived, made and applied to use a new & useful improvement in the art of burning wood for the manufacture of charcoal, specified in the words following, viz: This improvement consists in burning the wood in close & permanent kilns, instead of covering it in the usual way with leaves, turf or sods & earth; The kiln is built of bricks, stones or other proper materials laid in mortar, and may be either circular or square or of any other form. The circular shape, on account of the greater facility of supporting the roof, is to be preferred. The kiln may be made of any size to hold from one to fifty or more cords of wood. The walls are built perpendicularly to the height of three or twelve feet or more or less as may be convenient, leaving a tier of small holes at the bottom, & two or more tiers of small holes between these & the top of the walls. When the side walls have attained the height to which it is intended to carry them, the top is encircled with a strong band of iron, the ends of which should be strongly united, by bolts or otherwise to prevent the spreading of the walls by the weight of the roof & the top or roof is arched over in the form of a dome, leaving one or more tiers of small holes in the dome between the spring of the arch & the circular opening of about one foot diameter in the centre of the dome; the small holes in each tier or range should be at the distance of three to four feet from each other & the tiers one from the other, about two or two & a half feet asunder, one chimney rising from the foot of the kiln & one near the top of the kiln to facilitate the working; the intermediate small holes are designed to receive & let forth air or closed as may be

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required; in the side walls are left one or more openings as convenience demands in the form of doors, for charging with wood & discharging coals. The bottom of the floor of the kiln is laid with its outer edge on a level with the bottom of the foot vents, & is slightly raised towards the centre; this may be made of a floor of common boards laid on sand & covered with three or four inches of clay well & compactly laid on or it may be flagged with stones or paved with bricks, or in any other manner which will render it smooth & solid. The kiln may be filled with wood either by setting the wood on end, as in the ordinary coal pit or by laying it down as in a wood heap, if the latter method which I prefer, be adopted, it will be well to place some small pieces of wood loosely over the bottom, for the body of wood to rest upon, in order that the air may circulate freely under it. The smallest & driest wood should be placed at the bottom of the kiln beginning the longest (& it is no matter how large) for the upper half or thirty of wood may be laid in the middle corresponding with the opening in the centre of the dome; if so, some dry wood or brands should be placed in the centre at the bottom. When the kiln is entirely filled with wood the charging doors must be closed, either with iron doors luted, or by masonry; & the fire introduced thro' the central openings at the top; when the fire is kindled this opening must also be closed, which may be done by laying over it an iron plate & some earth; the fire can be easily and effectually governed by opening or closing vents as circumstances require; an experienced eye in managing soon learns to discover & to know the state of the fire within from the nature of the smoke from the vents & to draw the fire which ever way he chooses; when the wood is sufficiently charred, the fire may be easily extinguished by closing all the vents and every fissure hermetically; & in a few days it will be sufficiently cool to open & draw out the coals & substitute other wood when the operation recommences. What I claim as new and as the object of this application is the construction of permanent

kilns

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kilns above ground, with arched roofs, chimnies & vent holes as above described and for the purpose aforesaid, to assign sufficient to do business on an extensive scale. By the addition of a simple apparatus, this method of charring wood may afford vast quantities of pyroligneous acid, which may be applied to a variety of uses in the arts.

In Testimony that the above is a true specification of my said improvement as above described, I have hereunto set my hand & seal. this sixteenth day of Nov.r in the year of our Lord one thousand eight hundred & twenty nine.

A Bliles
L L Hoff } Witnesses

V. Doolittle