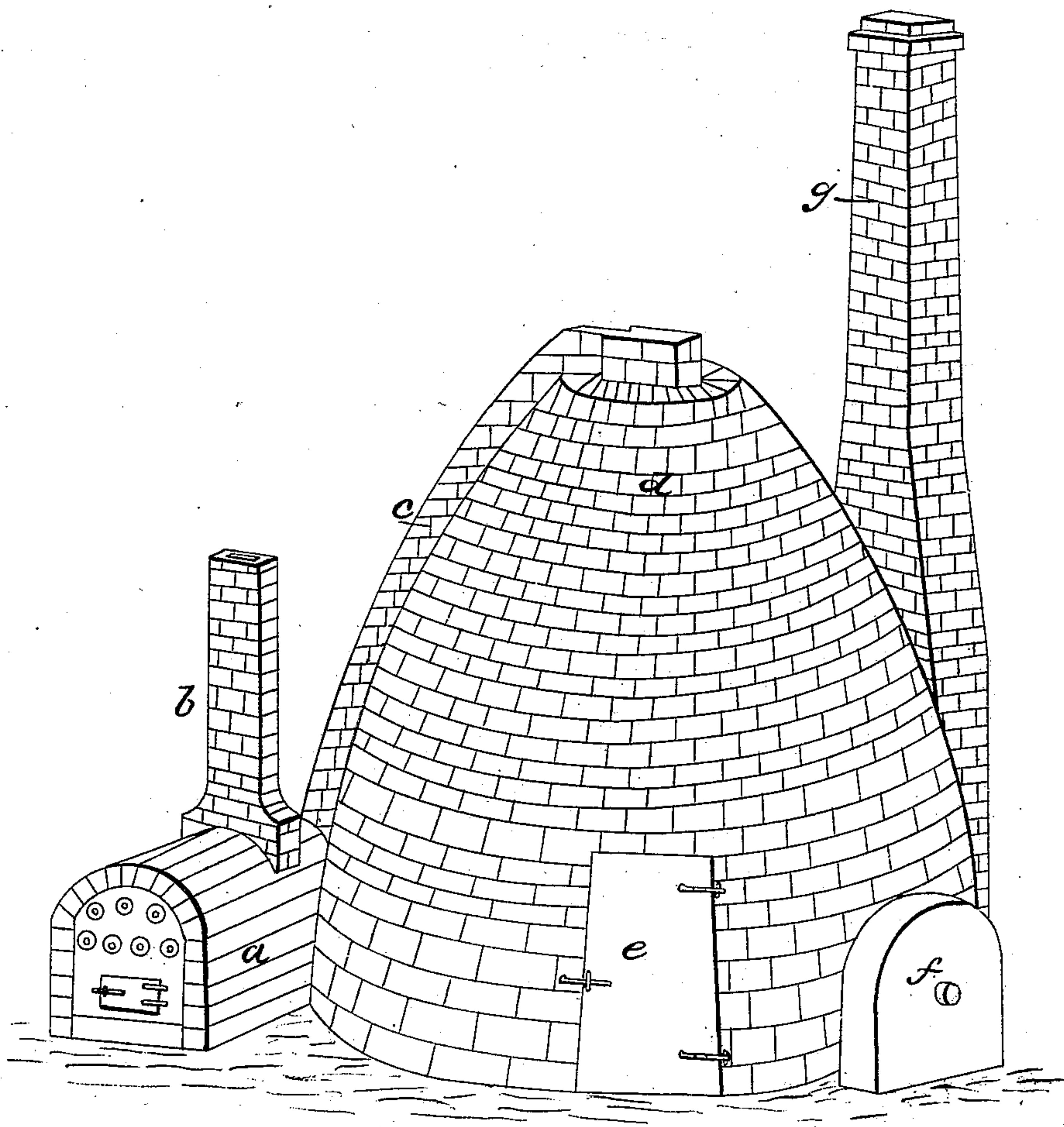


S. S. PERRY.  
Making Charcoal.

No. 14,619.

Patented April 8, 1856.



# UNITED STATES PATENT OFFICE.

SANDFORD S. PERRY, OF CHARLES CITY COUNTY, VIRGINIA.

## IMPROVEMENT IN CHARRING WOOD.

Specification forming part of Letters Patent No. 14,619, dated April 8, 1856.

*To all whom it may concern:*

Be it known that I, SANDFORD S. PERRY, of the county of Charles City, in the State of Virginia, have invented a new and greatly-improved mode or method of charring wood or converting wood into charcoal, or, as it is commonly termed, of "burning charcoal," by the application of hot or heated air to the wood to be charred, of which the following is a specification.

The nature of my invention consists in providing a kiln, constructed of bricks or any other fire-proof substance, made so as to be as nearly air-tight as possible, the kiln to be of any size required, and to be furnished with a door of suitable size to admit of the wood to be charred being conveniently arranged and packed in the kiln, and the door, when closed, to be as nearly air-tight as possible. Upon one side of the said kiln is provided a furnace constructed of brick or any other fire-proof substance, for the purpose of heating the air to be applied to the wood, for the purpose of charring the same. Said furnace is to contain a number of iron pipes, through which a current of air is to be made to pass, in order to be heated and introduced afterward into the kiln, the number of said pipes to depend upon the quantity of heated air that may be required for the size of the kiln to be used. The hot or heated air, after leaving the said pipes in which it is heated, is introduced by means of a flue, made of brick or any other suitable material, into the kiln, and may be introduced either at the top, bottom, or sides of the kiln, though the best mode of introducing it is at the top of the kiln. Upon the side of the kiln opposite to the furnace is placed a fan, or, as it may otherwise be called, a "blower" or "exhauster," so arranged as to be set in motion by any sort of motive power, and the effect of which, when in motion, is to exhaust the cold air from the bottom of the kiln, so as to gradually introduce the heated air, from the pipes in which it is heated, throughout the kiln. Instead of the fan or exhauster, there may be used a chimney or "stack," as it is commonly called, furnished with a damper, and constructed of such a height as may be necessary, and the effect of which chimney so constructed is to exhaust the cold air in the same mode as the fan. Instead of heating the air by means

of iron pipes, it may be heated by means of a retort or air chamber or cylinder, or other apparatus of equivalent mechanical effect; or the process of conducting or exhausting the cold air from the kiln, as above described, may be effected by the use of any other apparatus equivalent in mechanical effect to the stack or fan above described.

The mode of charring wood, or, as it is commonly, called of "burning charcoal," by the plan or method above described, is to arrange the wood to be charred in the kiln by placing it vertically in the kiln, commencing in the center of the kiln, in the same manner as the wood is placed in order to be burned by the old process of being burned in dirt or on the ground. Fire is then applied to the furnace until the pipes are heated to a red heat, the door of the kiln being closed, and the whole body of the kiln (except the apertures for introducing the heated air by means of the flue and for exhausting the cold air by means of the fan or stack, as aforesaid) being kept as nearly air-tight during the operation as possible. The furnace may be kept up to the proper degree of heat by the use of the waste or fine coal, or what is commonly called by colliers "braze." The operation of the fan or chimney and of the introduction of the heated air is to be kept up until the wood in the kiln is entirely charred, which will require from two and a half to four and a half days' time, according to the size of the kiln and the condition of the wood to be charred. As soon as the process of charring the wood is completed, as is indicated by the ceasing of the fan or chimney aforesaid to emit either smoke or steam, the apertures aforesaid leading from the flue into the kiln and from the kiln into the fan or chimney are to be stopped up or closed, so as to cut off all connection with the external air. In other words, the kiln is to be made as nearly air-tight as possible, and to remain in this condition until the kiln is entirely cooled, which will occupy from three to four days.

The drawing annexed to this specification describes fully, or as nearly as possible by a drawing, the method of burning charcoal above described.

Figure lettered *d* represents the kiln, which in the drawing is represented to be constructed



of bricks, although, as stated, it may be constructed of any other fire-proof material.

Figure lettered *e* represents the door of the kiln.

Figure lettered *a* represents the furnace for heating the pipes, with a representation of the ends of the pipes, (the view of the furnace in the drawing being a front view,) the ends of the pipes being represented to be as they are intended to be used—open—for the purpose of allowing the air to enter them.

Figure lettered *b* represents the chimney or stack of the furnace for heating the pipes, as aforesaid.

Figure lettered *c* represents the flue for conducting the heated air from the pipes to the kiln, and in the drawing is represented as being connected with the kiln so as to introduce the heated air at the top of the kiln.

Figure lettered *f* represents the fan or exhaustor with the axle for the purpose of attaching the motive power by which the said exhaustor or fan is to be driven for the purpose of exhausting the cold air from the kiln, as aforesaid.

Figure lettered *g* represents the chimney or stack, which may be substituted in the place of the exhaustor or fan, as above described.

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

The process or mode of charring wood, or, as it is commonly called, "burning charcoal," by the application of hot or heated air to the wood to be charred, as above described.

SANDFORD S. PERRY.

Witnesses:

EDWARD Y. CANNON,  
CHARLES STEBBINS.