

T. JAMES.  
Brick Kiln.

No. 20,433.

Patented June 1, 1858.

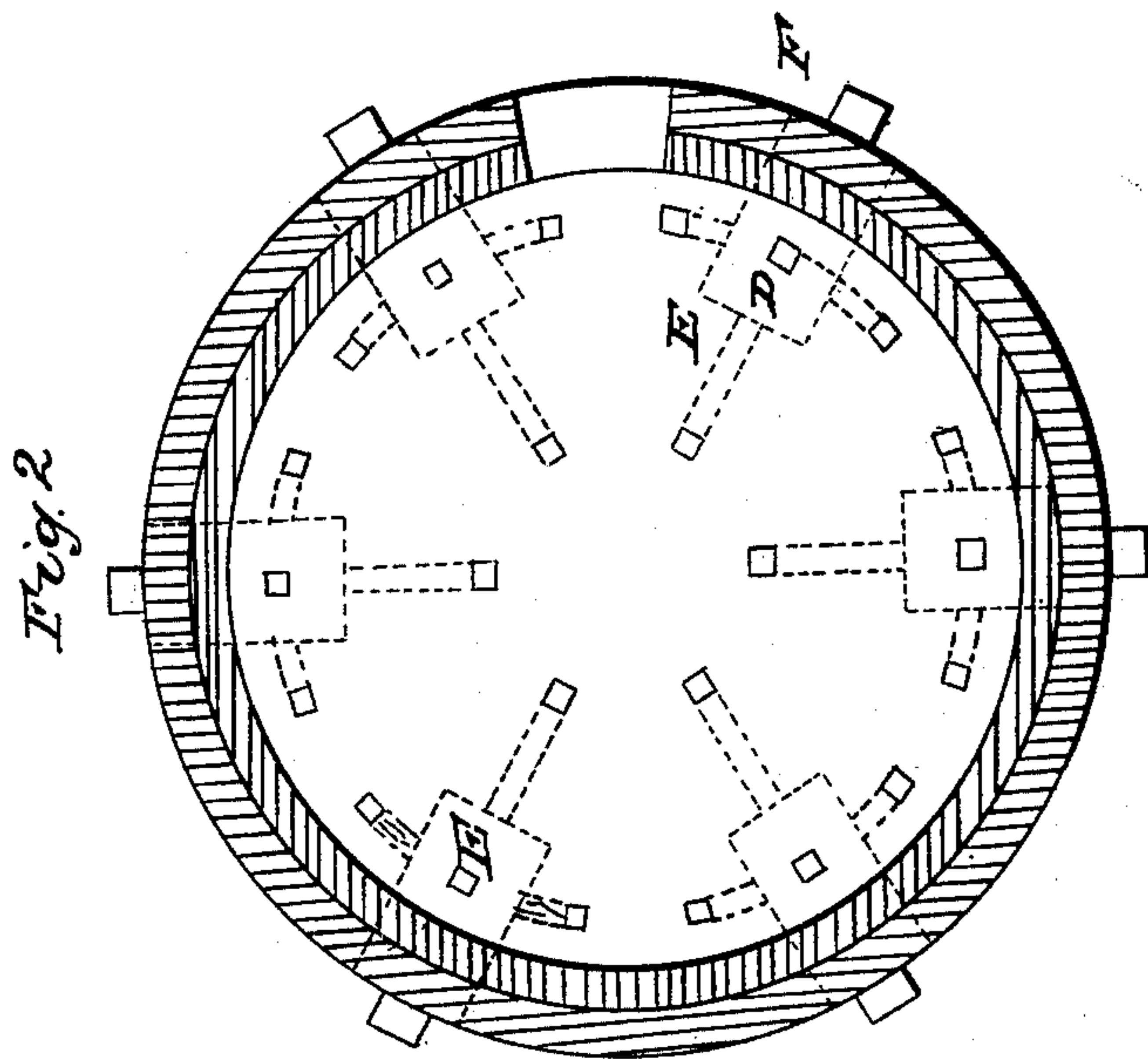
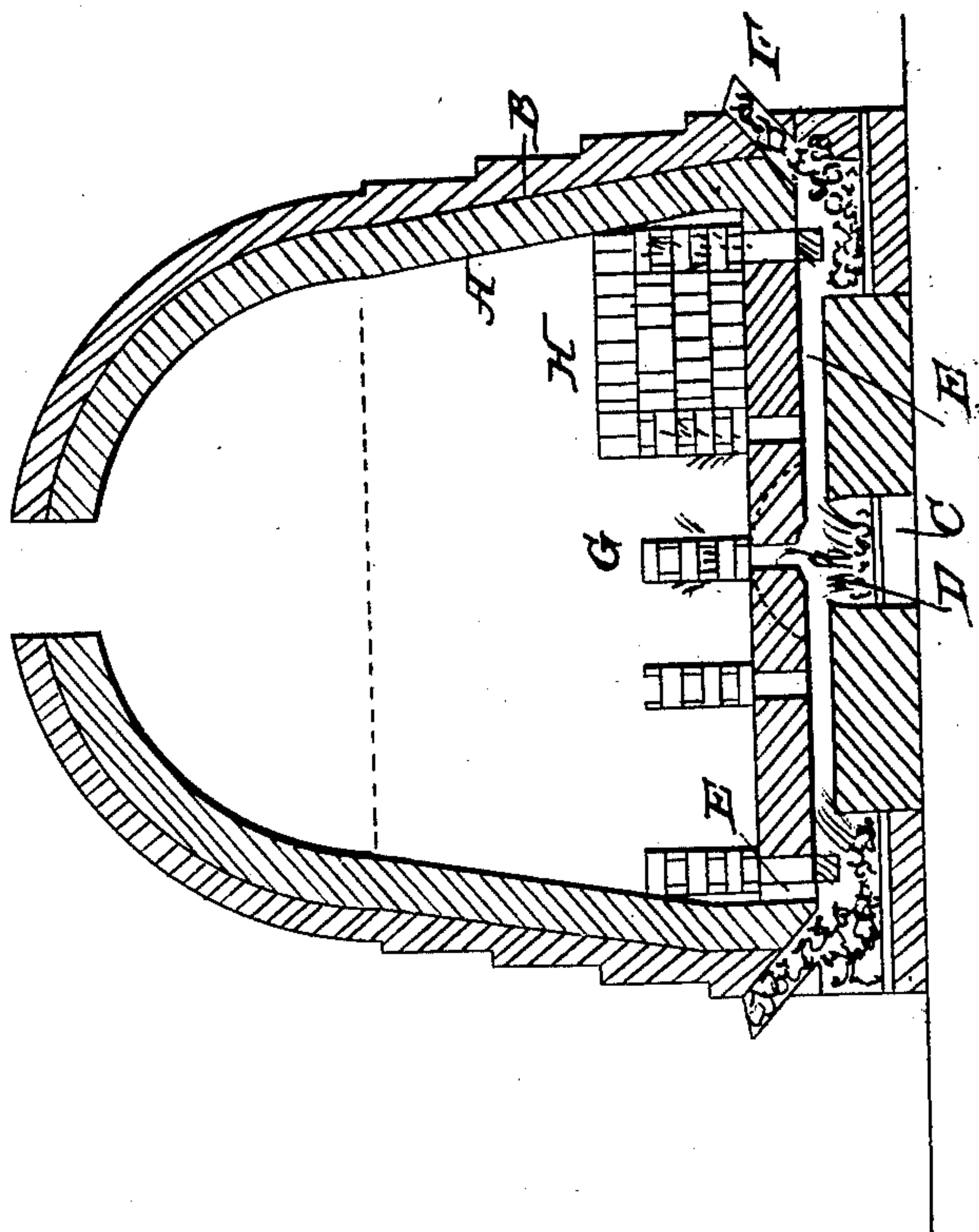


Fig. 1.





# UNITED STATES PATENT OFFICE.

THOS. JAMES, OF CANTON, MARYLAND.

## MANUFACTURE OF BRICK.

Specification of Letters Patent No. 20,433, dated June 1, 1858.

### *To all whom it may concern:*

Be it known that I, THOMAS JAMES, of Canton, in the county of Baltimore and State of Maryland, have made a new and useful  
5 Discovery in a Compound for Fire-Bricks; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying ingredients and description thereof.

10 The nature of my invention relates to the compounding of ninety seven per cent. (parts) of quartz pebbles, and three per cent. (or parts) of quicklime, and in reducing the said materials as herein described  
15 into a fire brick or tile.

To enable others skilled in the art to make and use my invention I will proceed to describe the compound and operation of reducing the same to bricks or tile.

20 I take (97) ninety seven per cent. of best quartz pebbles, and three (3) per cent. of best quicklime, I grind or crush the quartz pebbles to fine gravel, I then take the three per cent. of lime and put it in a suitable box  
25 and put in a sufficient quantity of water to dissolve or slake it into liquid (or paste) (of lime). I then cover the box air tight and let the lime and water stand for twelve hours, then stir well (ready for use). I  
30 now draw off the liquid into another box, being careful to keep all coarse stuff from passing into this box. The liquid having been run off from the first box into the second one, is now ready for use. I now  
35 take any desired quantity of the crushed pebbles, put it into a heap on the floor alongside of the liquid, and draw, as I require of the liquid to wet the crushed pebbles, sufficiently to form the same into a suitable  
40 state to be placed into the molds for pressing, as they are pressed, for the purpose of compressing the material to the consistence of stone or as nearly as can be, and also to get all the moisture possible out of the com-  
45 position and for the purpose of speedy drying. As the bricks are pressed they are carried off to the drying floor prepared for the purpose (of drying) which completes the operation of the manufacture, and the article is now ready (in ten hours) to be set in  
50 the kiln for burning, where it is subjected to a heat produced by bituminous coal to reduce the compound to a substantial fire brick or tile, which by skilful management  
55 is accomplished in about seven days and nights, by as white a heat as can be pro-

duced from bituminous coal, which is more fully described by the accompanying drawings in which—

Figure 1 is a cross section, and Fig. 2, a 60 plan of the same.

I make my kiln fifteen feet in diameter and ten feet high to the base of the dome or cover, I build a nine inch wall A of fire brick and cover in with a wall of common 65 bricks of same thickness B.

C, are ash pits D, the furnaces E, the flues F, tubes for introducing the coal.

G, are open flues which are made by setting fire brick on their edge, crossing them, 70 alternately six brick in width which makes the length of three bricks set on end. This process is for the purpose of conducting a larger body of flame into the center of the body of the kiln. I stand the blocks or 75 bricks on end as H, where it is seen that the width of 6 bricks agrees with the height or length of three bricks, and when I get to the top of the flues I then cover over all the small flues and pack the whole upper part 80 of the kiln to the base line of the dome.

The above proportions may be somewhat varied according to the quality of the materials, and use to which the bricks or tile are to be applied, but for general use and 85 with the best material I prefer the proportions as above set forth.

Bricks made as above are found to swell or expand when subjected to any degree of heat required in smelting ores while most of 90 the brick now in use will contract and cause the arch to fall in, after a little use, and often when an extensive operation in smelting is going on.

Bricks manufactured by the above process 95 are peculiarly adapted to smelting purposes where the arch is indispensable as the heat to produce them is much greater than is required for smelting purposes.

Having thus fully described my invention 100 what I claim as new and desire to secure by Letters Patent is—

In the manufacture of fire bricks or tiles compounded of the ingredients described—the herein described process of heating or 105 burning to convert the said ingredients into a substantial fire brick or tile.

THOMAS JAMES.

Attest:

JOHN S. HOLLINGSHEAD,  
JOHN H. WISE.