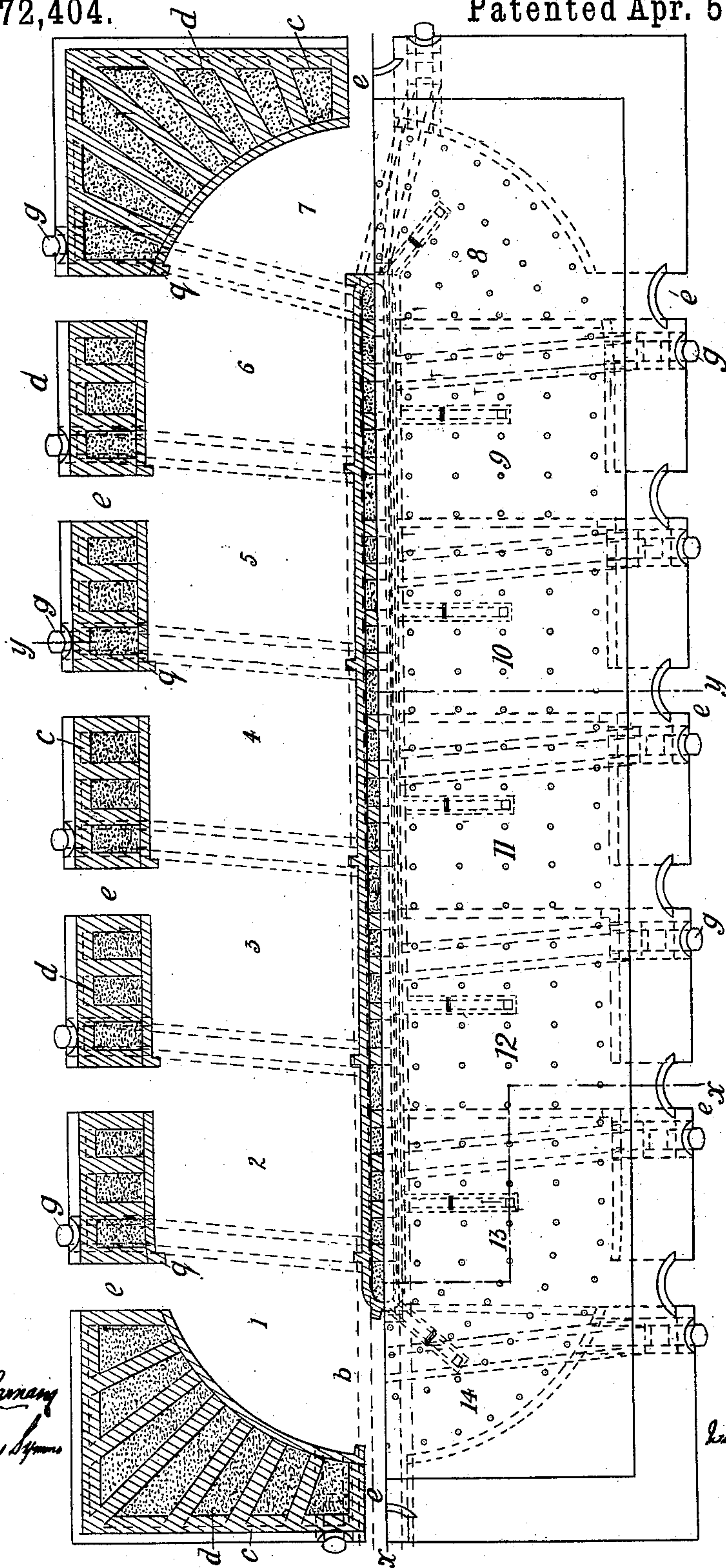


W. SERCOMBE.  
BRICK KILN.

No. 472,404.

Patented Apr. 5, 1892.

Fig 1



Witnesses  
Victor Lyall Burnham  
Charles Henry Symes

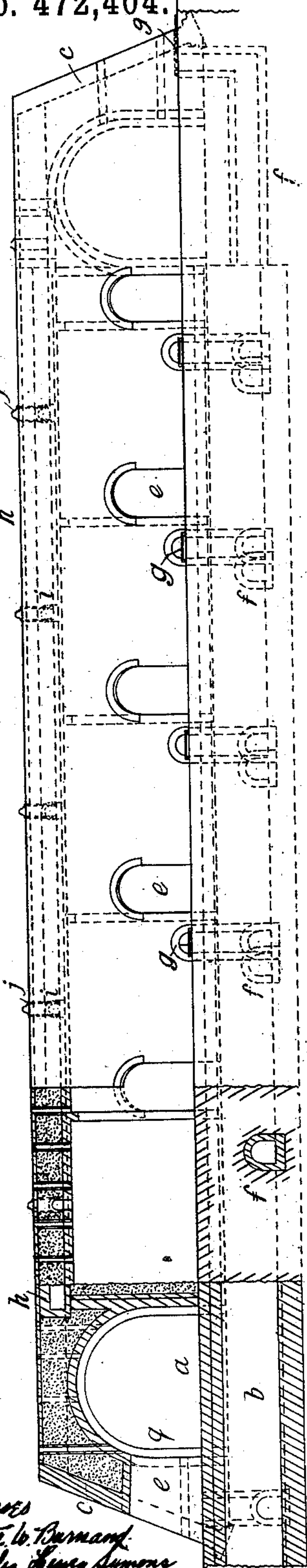
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Fig. 2



Witnesses  
Victor L. Burnand  
Charles Henry Symons

Fig. 4

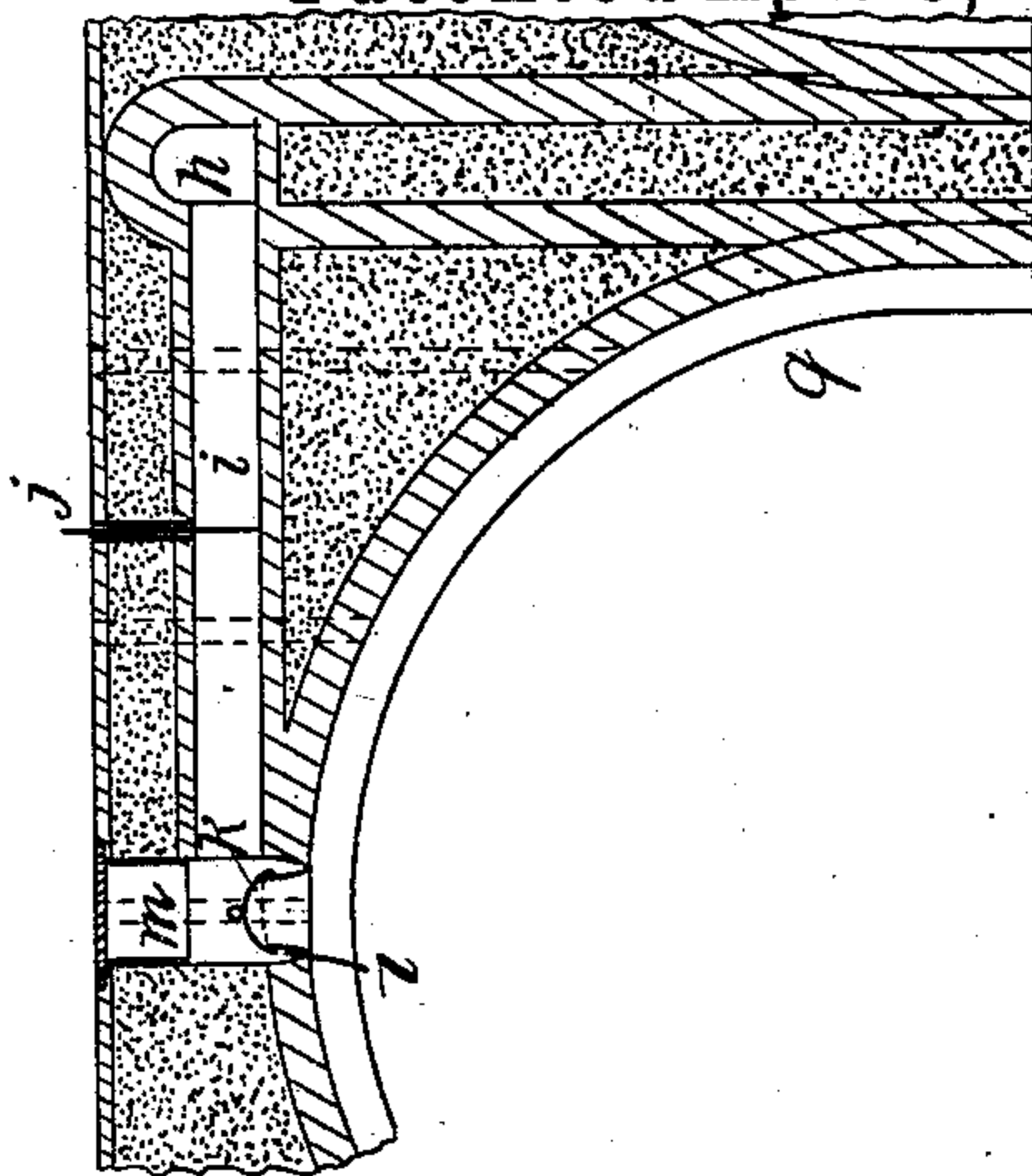


Fig. 5

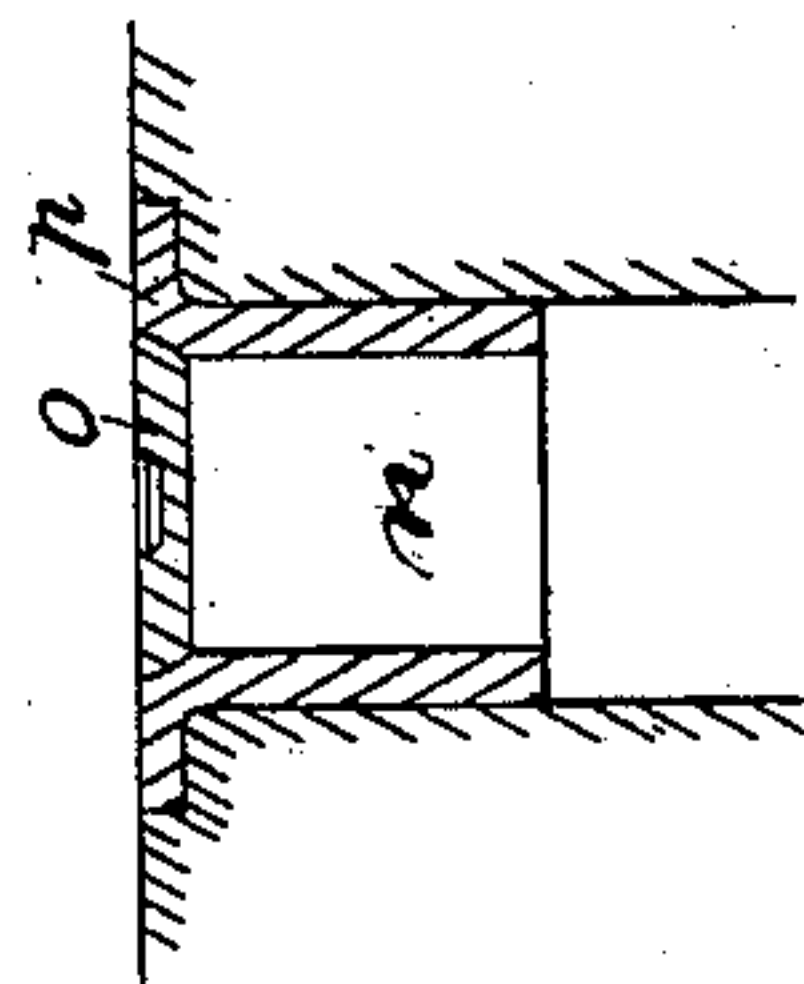


Fig. 6

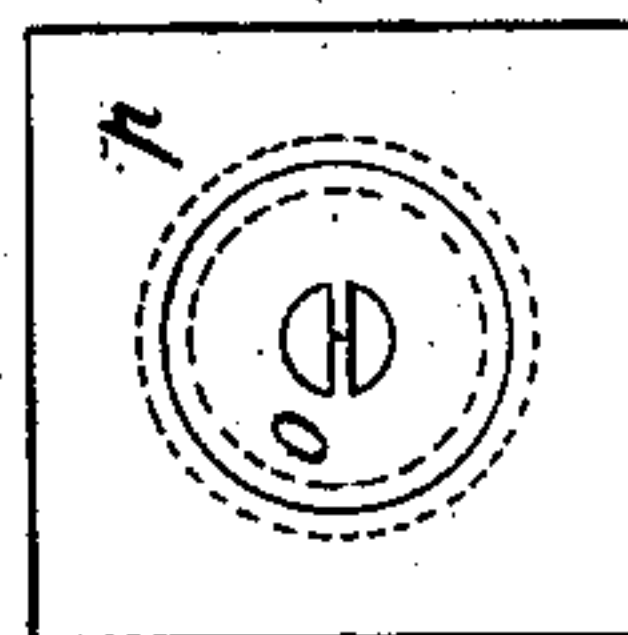
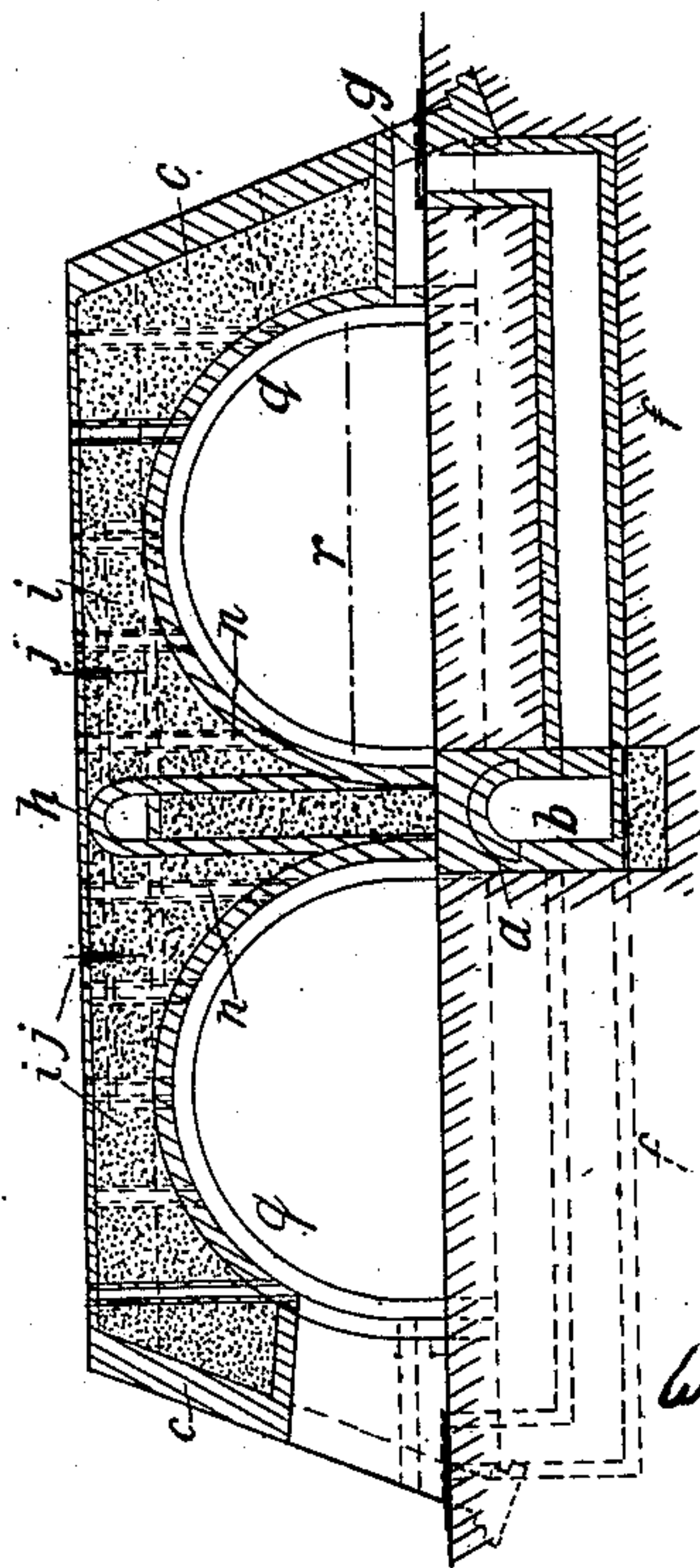


Fig. 3



Inventor  
William Sercombe



(No Model.)

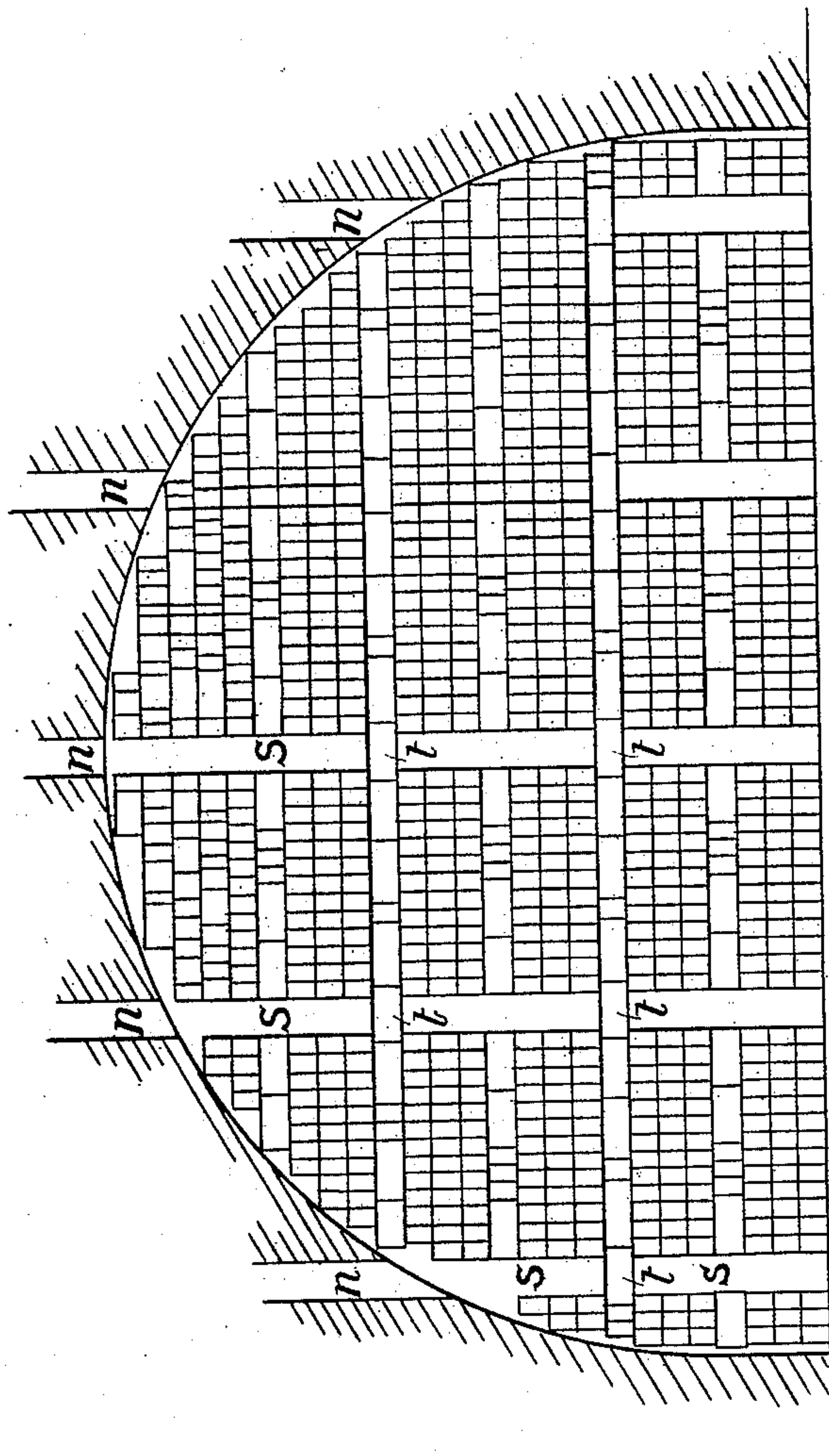
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Fig. 7.



Witnesses  
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Charles Henry Symons

Inventor  
William Sercombe

# UNITED STATES PATENT OFFICE.

WILLIAM SERCOMBE, OF HAMWORTHY, POOLE, ENGLAND.

## BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 472,404, dated April 5, 1892.

Application filed October 9, 1891. Serial No. 408,248. (No model.) Patented in England January 6, 1891, No. 238.

*To all whom it may concern:*

Be it known that I, WILLIAM SERCOMBE, manager of brick-works, residing at Hamworthy, Poole, in the county of Dorset, England, have invented certain new and useful Improvements in Brick-Burning Kilns, (for which I have obtained provisional protection in Great Britain bearing date January 6, 1891, No. 238,) of which the following is a specification.

My invention relates to what are known as "continuous" or "chamber" kilns—such, for instance, as the "Hoffman" kiln—for burning bricks and other articles.

The chief objects of my invention are, first, to so equalize the heat of the chambers that the bricks therein will all be burned of equal hardness; secondly, to produce perfect combustion, and thereby to economize fuel and prevent smoke from entering the chimney-shaft, and, thirdly, to utilize better than heretofore the waste heat escaping from the chambers which are cooling for drying green bricks in other chambers before firing, and thus prevent the staining or discoloring of the same.

In the accompanying drawings, Figure 1 is a sectional plan of the brick-kiln embodying my invention. Fig. 2 is a front elevation, partly in section, on the line  $x x$  in Fig. 1. Fig. 3 is a vertical cross-section on the line  $y y$  in Fig. 1. Fig. 4 is a broken enlarged sectional view showing in detail one of the flues in the top portion of the kiln and the covers controlling the flue-openings. Figs. 5 and 6 are a vertical section and plan, respectively, of the cover to the fuel-openings; and Fig. 7 is an enlarged detail sectional view showing the manner in which the bricks are packed in the chambers.

My improved kiln, which is of oblong or rectangular shape, is provided with two arches placed side by side and connected at their ends to form a continuous chamber or tunnel. These arches upon their minor or adjacent sides are supported upon the brick-work  $a$ , in which the flue  $b$ , connected to the chimney, is formed, the said flue being preferably four feet six inches (4' 6") in height and two feet four inches (2' 4") in width. The arches of the kiln are inclosed in an outer shell or covering  $c$ , which, in order to avoid the use of an unnecessary number of

bricks, is formed with pockets  $d d$ , filled with rubble.

$e e$  are apertures for affording access to the kiln, the number of apertures corresponding to the number of chambers into which the kiln is adapted to be divided. As shown upon the drawings, the number is fourteen.

Each portion of the kiln designed to serve as a chamber is connected by a flue  $f$  to the main flue  $b$ , the said flue, which is preferably one foot six inches (1' 6") in height and one foot six inches (1' 6") in width, extending in the opening in the wall of the arch through an arched passage outward, then downward for a depth of, say, four feet six inches, (4' 6"), and then beneath the floor of the kiln to the said flue  $b$ . Each flue  $f$  is provided with a damper  $g$ , by means of which it may be closed, the said damper being arranged to slide in the arched passage, the mouth of which is closed, when desired, by means of a few loose brick, plastered over with clay.

In the upper part of the kiln is a flue  $h$ , which is connected with the several portions of the kilns designed to form chambers by means of passage  $i i$ , each of which passages is provided with a damper  $j$  for shutting off communication between the kiln and the flue  $h$  and with a cover  $k$ , the edge of which is adapted to fit into the trough  $l$ , surrounding the opening in the crown of the arch through which the heat enters the passage  $i$ , the said cover being removed through the opening  $m$ , closed by a cover, all as clearly shown in Fig. 4. The flue  $h$ , it will be noticed, is placed between the arches, in order that the heat escaping from one chamber shall pass as directly as possible to another chamber, and thereby suffer as little loss as possible.

$n n$  are holes extending from the top of the kiln to the interior of the chambers and serving for the introduction of fuel, the said holes being normally closed at the top by covers  $o o$ , fitting in seats  $p p$ , as shown in Figs. 5 and 6.

$q q$  indicate inner ribs in arches, up to which the bricks are built to form a separation between two chambers. For forming a division the upper part of the bricks—say the part above the dotted line  $r$ , Fig. 3—is plastered over with loamy clay, while the under parts are closed by a removable shutter,



formed in sections to enable it to be readily removed, this shutter only being removed when the chamber following it is filled and ready for sealing in a similar way.

5 In packing the bricks into a chamber vertical passages S S are formed beneath the holes *n n*, so that the fuel shall fall among the bricks, and horizontal flues are formed at  
10 certain intervals by placing some of the bricks across the others, as shown in Fig. 8, so as to leave spaces between through which the fire can pass from chamber to chamber. In the  
15 vertical flues I place bricks transversely at certain intervals, as at *t*, to prevent all the fuel from falling to the bottom of the passages S S. Transverse passages are also formed  
20 across the chambers opposite the opening in the outer wall, connected with flue *f*, Fig. 3, crossing at right angles all the horizontal flues shown in Fig. 8.

The working of the kiln will be understood from the following: Assume that the chamber 1 is being emptied, that the bricks in chamber 2 have become cooled after burning, that  
25 the bricks in chambers 3 and 4 are cooling, that those in chamber 5 have just had enough fire, that chamber 6 is in full fire, the chamber 7 white-hot, the chambers 8 and 9 red-hot, the chamber 10 black-hot, the chamber  
30 11 quite dry, the chambers 12 and 13 steaming or dripping, and the chamber 14 setting. In this case the dampers G G of the chambers 6 and 7 are tightly closed, and those in chambers 8, 9, and 10 are more or less open and of

11 fully open, so that part of the products of 35 combustion escaping from the chamber 6 will pass through the chambers 7, 8, 9, 10, and 11 before escaping to the flue *b*; also, the dampers J J of chambers 3, 4, and 5 and of chambers 12 and 13 are open, so that waste heat 40 escaping from the cooling-chambers 3, 4, and 5 will pass into the chambers 12 and 13 to dry the bricks therein prior to the application of the fire, so that the said bricks will not be dis- 45 colored by the direct action of the fire when applied.

Having now particularly described and as- 50 certained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

The combination, with the nearly-parallel arches connected at the ends to form a continuous arch, the arch being also adapted to be divided into chambers, of a hot-air flue ex- 55 tending centrally between and above the arches, branch damper-controlled flues extending from the main flue and above the several chambers of the arches, and vertical open- 60 ings extending through the roof of the arches and intersecting the ends of the branch flues, the vertical openings having removable covers adapted to fit in their lower ends and close the entrance to the arches, substantially as described.

WILLIAM SERCOMBE.

Witnesses:

VICTOR WYATT BURNAND,  
CHARLES HENRY SYMONS.