

No. 746,611.

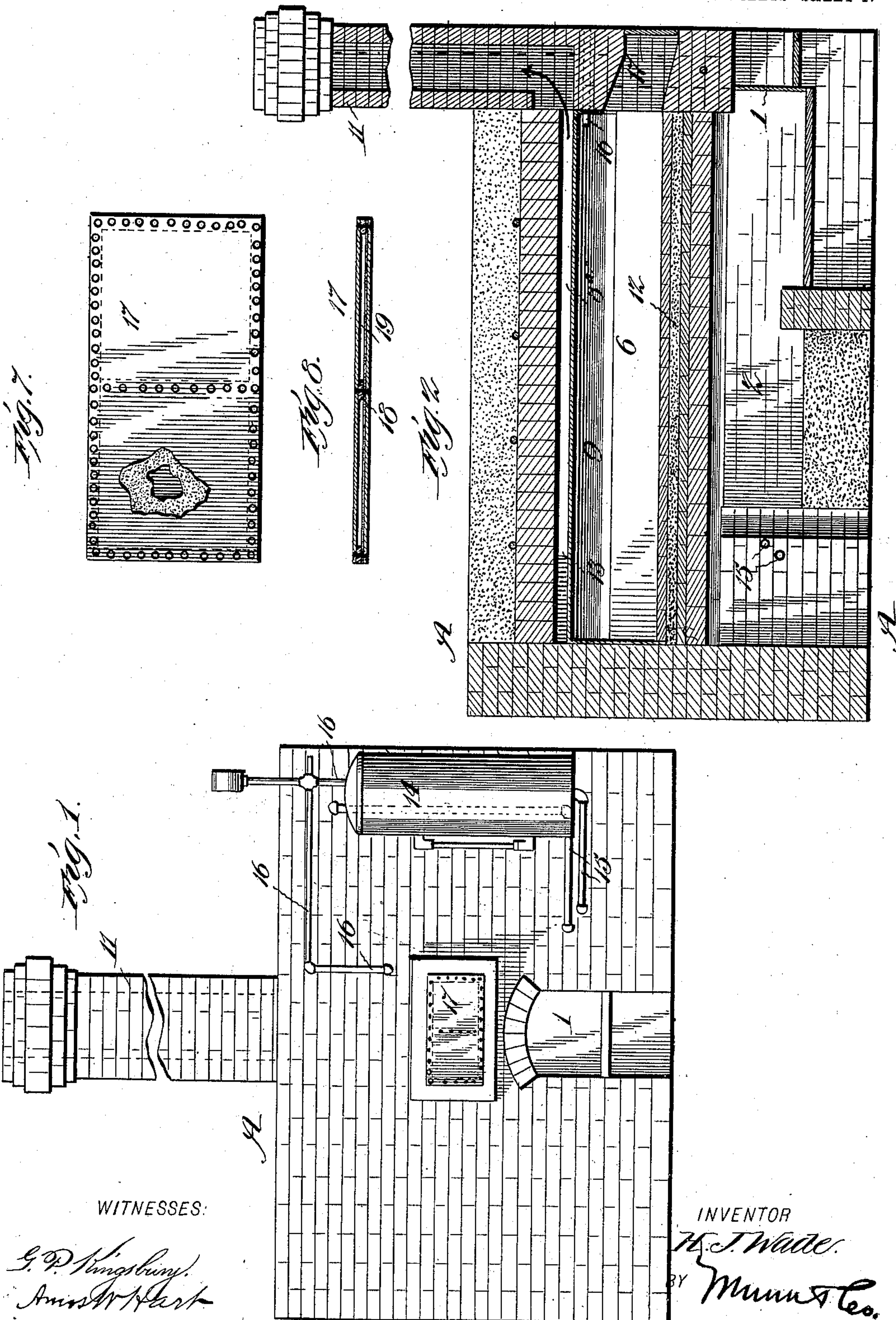
PATENTED DEC. 8, 1903.

H. J. WADE.
BAKE OVEN.

NO MODEL.

APPLICATION FILED MAR. 4, 1903.

3 SHEETS--SHEET 1.



WITNESSES:

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3 SHEETS—SHEET 2.

Fig. 3.

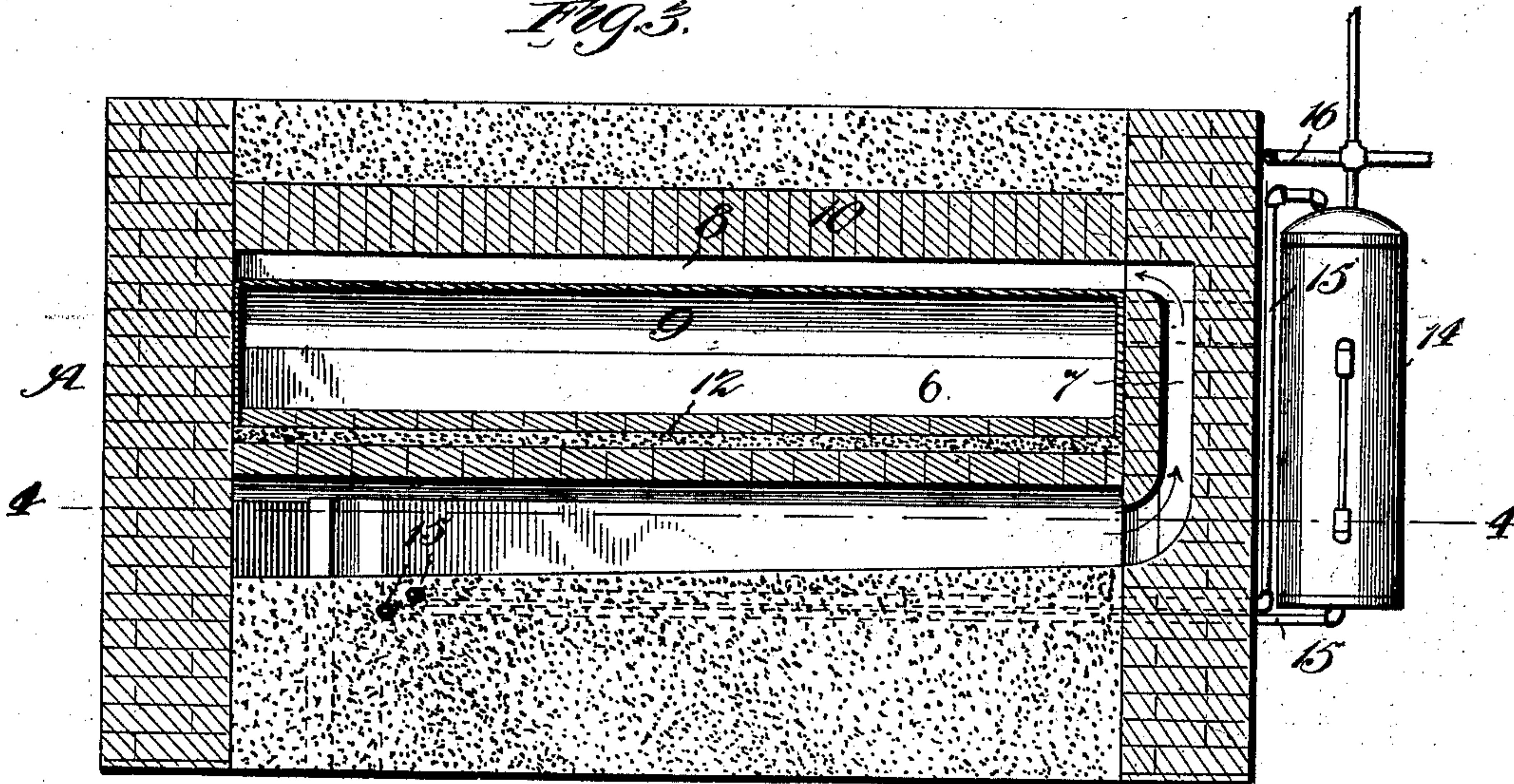
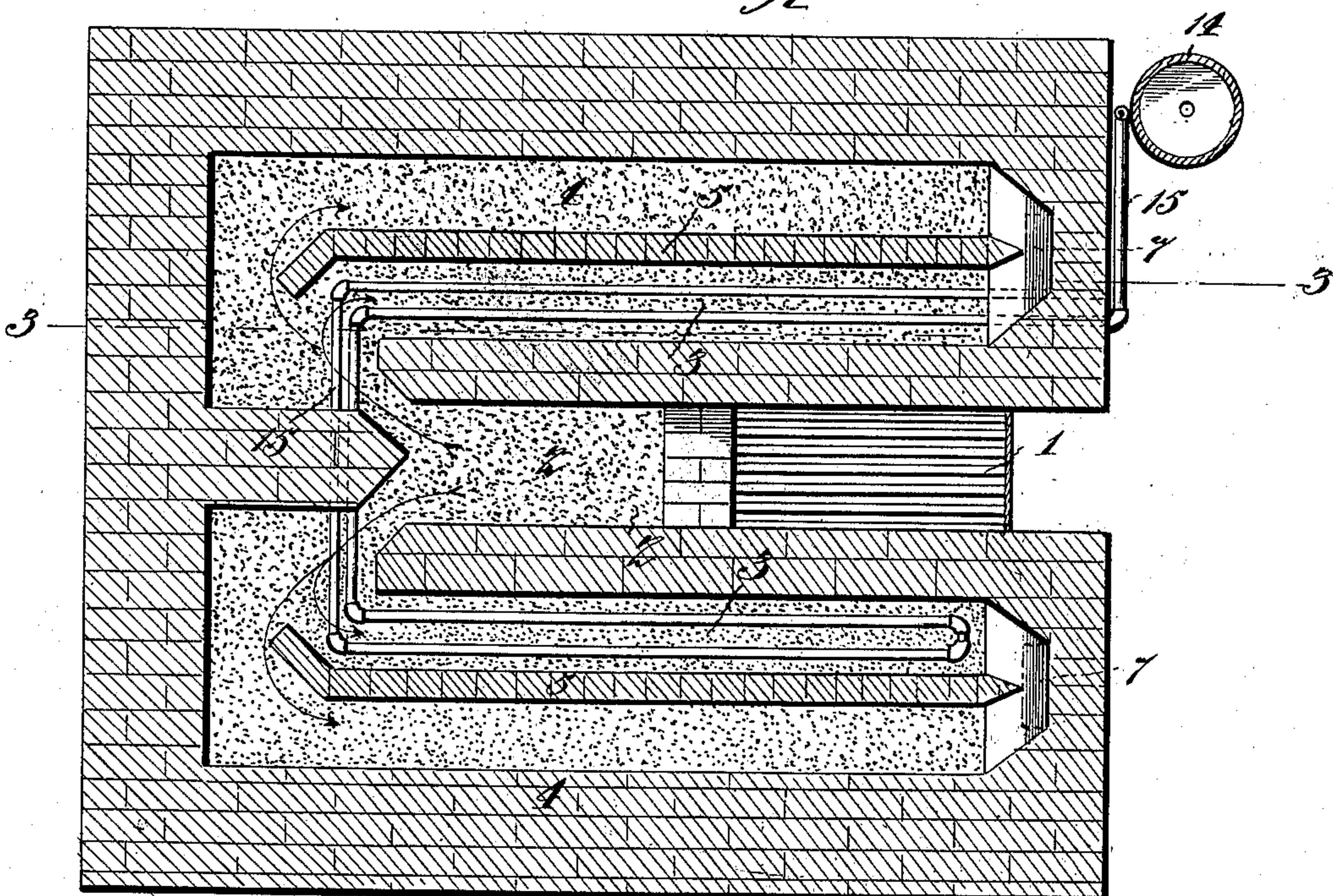


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

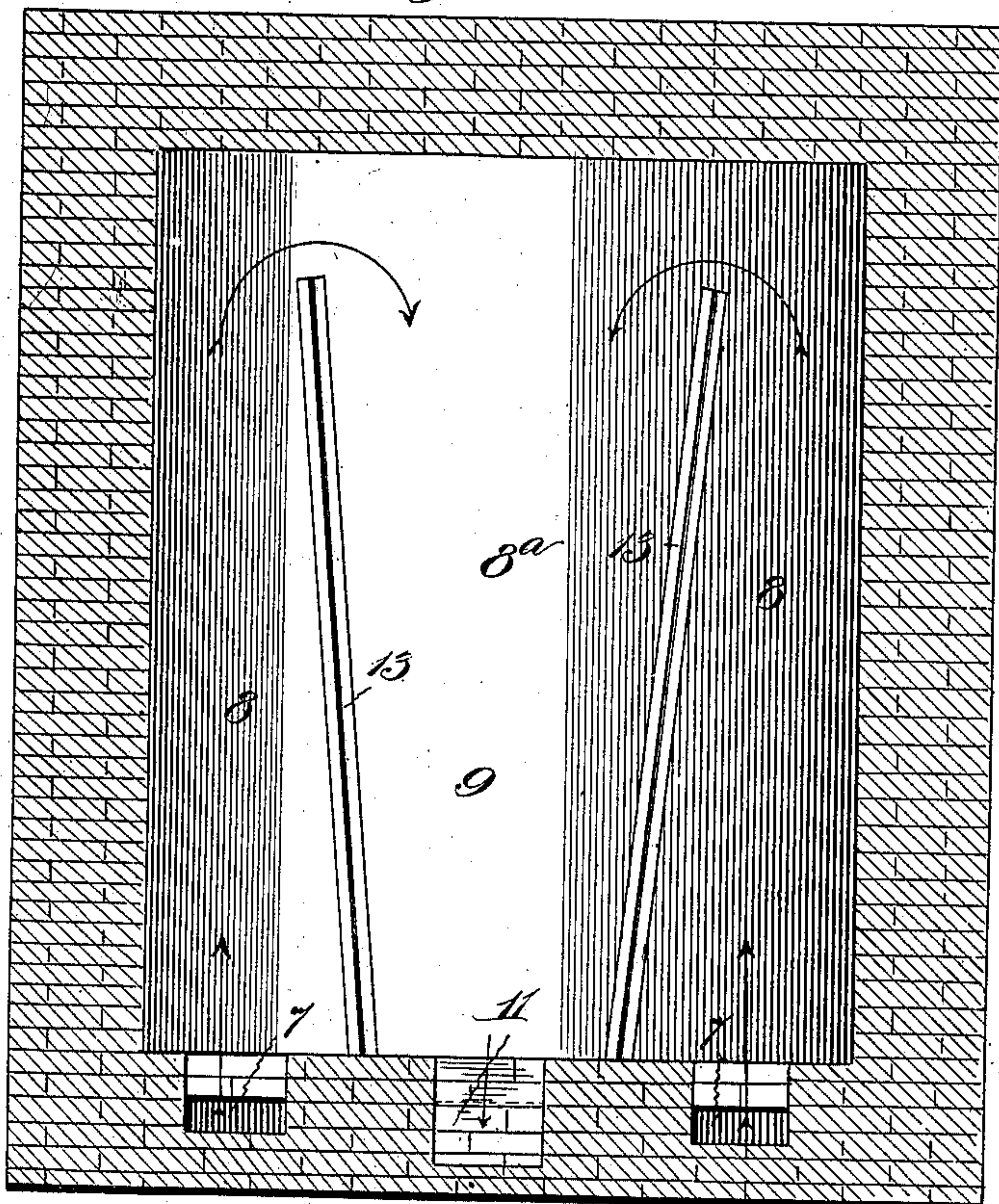
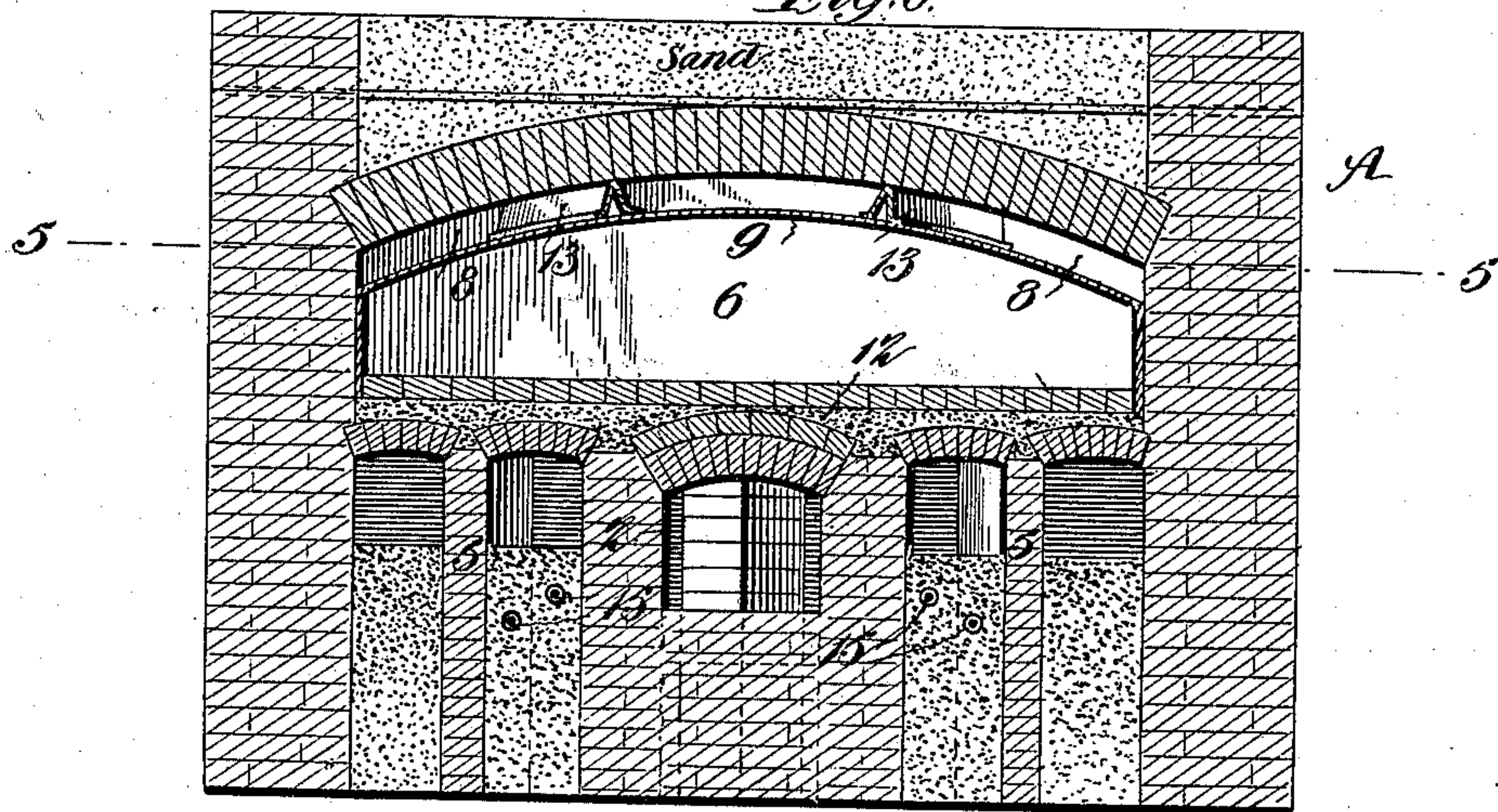


Fig. 6.



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UNITED STATES PATENT OFFICE.

HARRY JOSEPH WADE, OF POCA TELLO, IDAHO.

BAKE-OVEN.

SPECIFICATION forming part of Letters Patent No. 746,611, dated December 8, 1903.

Application filed March 4, 1903. Serial No. 146,092. (No model.)

To all whom it may concern:

Be it known that I, HARRY JOSEPH WADE, a citizen of the United States, residing at Pocatello, in the county of Bannock and State of Idaho, have made certain new and useful Improvements in Bake-Ovens, of which the following is a specification.

It is the object of my invention to improve the construction of bake-ovens whereby heat is applied more directly and effectively and fuel thereby economized, also whereby the cost of construction is materially reduced.

The invention includes apparatus for the economical heating of water for the production of steam in the baking-chamber.

The details of construction, arrangement, and operation are as hereinafter described, reference being had to accompanying drawings, in which—

Figure 1 is an end view of my improved bake-oven. Fig. 2 is a longitudinal central section. Fig. 3 is a longitudinal vertical section on the line 3 3 of Fig. 4. Fig. 4 is a horizontal section on the line 4 4 of Fig. 3. Fig. 5 is a horizontal section on the line 5 5 of Fig. 6. Fig. 6 is a vertical transverse section through the body of the oven. Fig. 7, Sheet 1, is a face view of the door of the baking-chamber, a portion being broken out to show the interior construction. Fig. 8 is a transverse longitudinal section of such door.

The walls of the bake-oven A are constructed of brick. In Fig. 1 the furnace or combustion-chamber 1 is shown located centrally in the end of the bake-oven. By reference to Fig. 4 this arrangement will be better understood. From the furnace 1 the main flue 2 extends rearward and has branches leading to the right and left, where two flues 3 4 are formed on each side of the main flue. The two flues 3 4 are in each case divided by a narrow partition-wall 5, which is shown also in Fig. 6. This wall 5 serves to support the floor of the baking-chamber 6 at points intermediate of the central flue or arch and the side walls of the oven. It will be seen that by use of such partitions 5 I am enabled to employ a flatter arch for the two flues 3 4 than would be otherwise practicable and that the thickness of the wall or partition which separates the flues 3 4 from the baking-chamber may be reduced in thickness. In other

words, the space between the heating-flues and the floor of the oven is reduced, so that a more direct application of heat is obtained and heat is economized, so that baking may be effected in a shorter time. In brief, the cost of fuel is reduced, as well as the time required for firing the oven. By means of the partitions 5 I secure the further advantage of reduction of side pressure on the main walls of the oven, so that the latter do not require to be made so thick as usual. The partitions 5 likewise add to the strength or support of the floor of the oven. From the flues 3 4 the heated gases and other products of combustion pass up through end flues 7 (see Fig. 3) and enter the side flues 8, (see also Figs. 5 and 6,) which are formed on the sides of the top of the baking-chamber 6—that is to say, the space between the metal ceiling 9 (see Fig. 6) of the baking-chamber and the brick arch 10 of the same is divided into three flues 8 8^a, the latter being a return-flue which communicates with the chimney 11, as shown in Fig. 2. The ceiling and the sides of the baking-chamber 6 are formed of sheet or plate steel, the same being curved conformably to the brick arch 10, but separated therefrom by a considerable space, while the sides project downward below the brick floor of the baking-chamber and are embedded in the sand 12, which underlies the latter. The partitions 13, by which the space above the ceiling 9 is divided, are formed of sheet or plate metal, preferably steel, and are triangular in cross-section, the apex or angle of the same being upward. These partitions are inserted so as to maintain their position by friction with the ceiling 9 and the arch 10, and they are arranged at a slight inclination toward the rear corners of the flue-space above the ceiling in order to force the products of combustion into the said corners. As shown in Fig. 5, the partitions terminate at a considerable distance from the end of the flue-space, so that the products of combustion pass freely through the side flues 8 into the enlarged mouth of the tapered central flue 8^a. The angular form of the partitions 13 allows them to contract and expand more or less, so that they always maintain close contact with both the steel ceiling 9 and brick arch 10. The ceiling 9, with its pendent sides, may be ap-

plied to ovens already constructed without the necessity of removing the main arch 10. This is an important advantage and enables old bake-ovens to be remodeled upon my system at comparatively small expense.

I provide for the admission of steam to the oven proper, 6, by means of a boiler 14 and pipes 15, arranged as shown in several figures, especially 1, 3, and 4. The boiler 14 is arranged on the front of the bake-oven, and the water-circulating pipes 15 connect therewith at top and bottom, as shown, and extend parallel through the flues 4 and across the rear portion of the central flue 2, as best illustrated in Fig. 4. It will be noted (see Fig. 3) that these pipes are embedded in the sand, whereby they are protected from the direct action of flame or heat, but receive sufficient heat to effect due heating of the water in the boiler 14. The pipes thus last a much longer time, and an advantage is obtained in that they do not absorb heat which should be properly directed and utilized for heating the baking-chamber proper, 6. A steam-pipe 16 is connected with the top of the boiler 14 (see Figs. 1 to 3) and enters the baking-oven near its front end, as illustrated in Fig. 2. In practice the steam-pipe will be provided with a stop-cock in order to control the admission of steam as required to enable the oven to be used with dry heat when desired. The door 17 of the baking-chamber 6 (see Figs. 1, 7, and 9) is constructed of two metal plates, preferably steel, which are separated from each other by a narrow air-space, the same being divided centrally by a cross-partition 18. A sheet of asbestos 19 is arranged upon the inner of the two sheets composing the door. By this means I am enabled to make the door very light and at small cost, while the escape of heat is mainly cut off.

By means of the construction and arrangement of parts before described I effect an important economy in the consumption of fuel in the course of construction of the bake-

oven as a whole and in adaptation for repair or remodeling of ovens originally provided with a brick arch for the baking-chamber proper. I also provide for maintaining a close joint between the flues in the ceiling-space despite the expansion and contraction of the ceiling 6.

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

1. In a bake-oven, the combination with the main arch of the baking-chamber, of a metal ceiling which is spaced from the said arch, and partitions inserted between them and held by friction with the respective parts, substantially as shown and described.

2. In a bake-oven, the combination with the baking-chamber, having a main arch, and a metal ceiling spaced therefrom, of longitudinal partitions which are corrugated and thus adapted for expansion and contraction, the same being in contact with the arch and ceiling, substantially as shown and described.

3. In a bake-oven, the combination, with the baking-chamber having a main arch, and a steel ceiling arranged below and spaced from the same, of the longitudinal partitions which are arranged between the said arch and ceiling and in contact with both, the said partitions being made in triangular form in cross-section, whereby they are adapted for contraction and expansion, as described.

4. The combination with the bake-oven proper, of the water-circulating pipes arranged on the sides of the main central flue and extending around the inner end of the same, a boiler, located exteriorly to the oven and with which said pipes communicate at top and bottom, and a steam-pipe leading from the top of the boiler into the bake-oven proper, substantially as shown and described.

HARRY JOSEPH WADE.

Witnesses:

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ALBERT KLEEMAN.