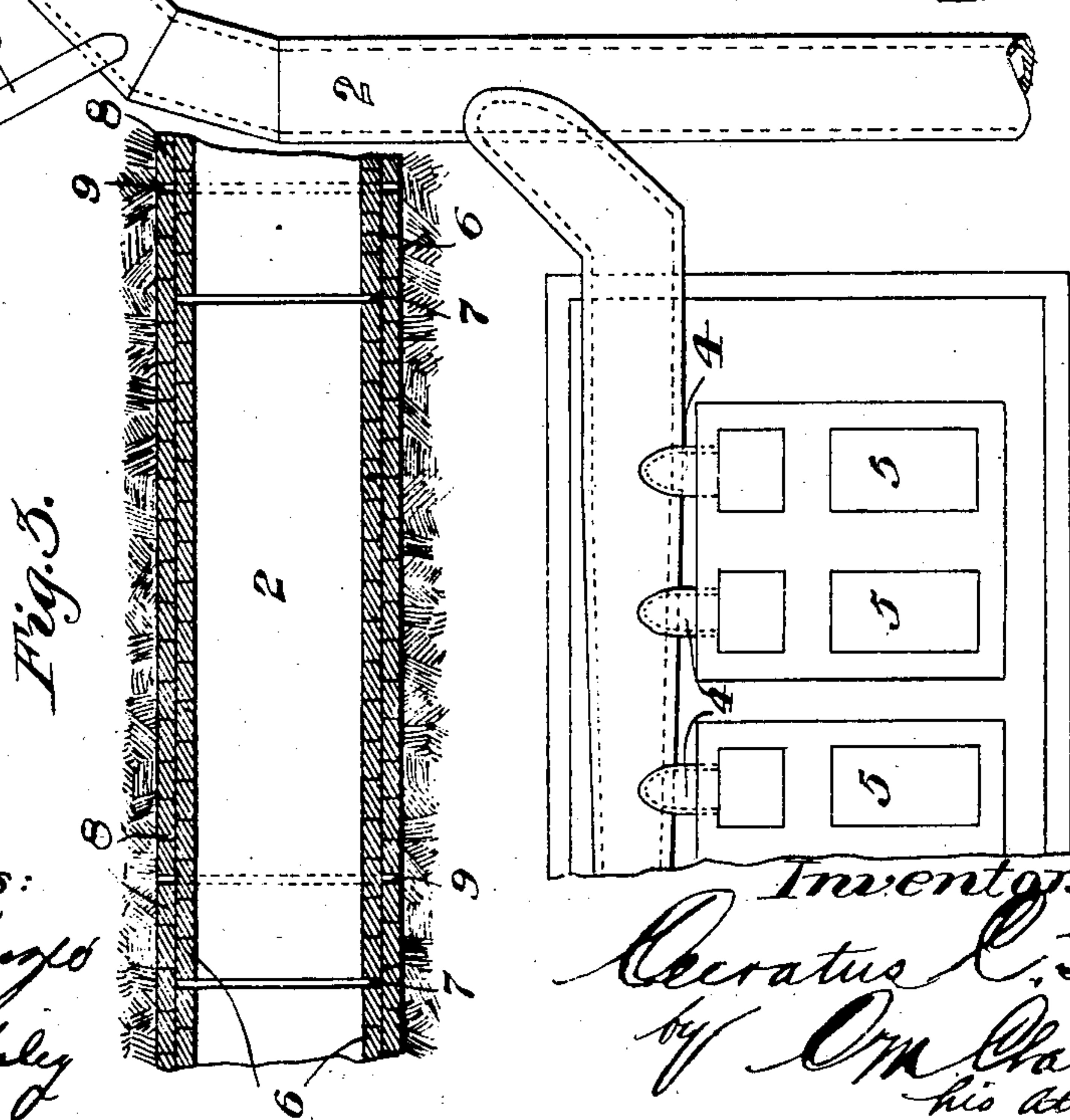
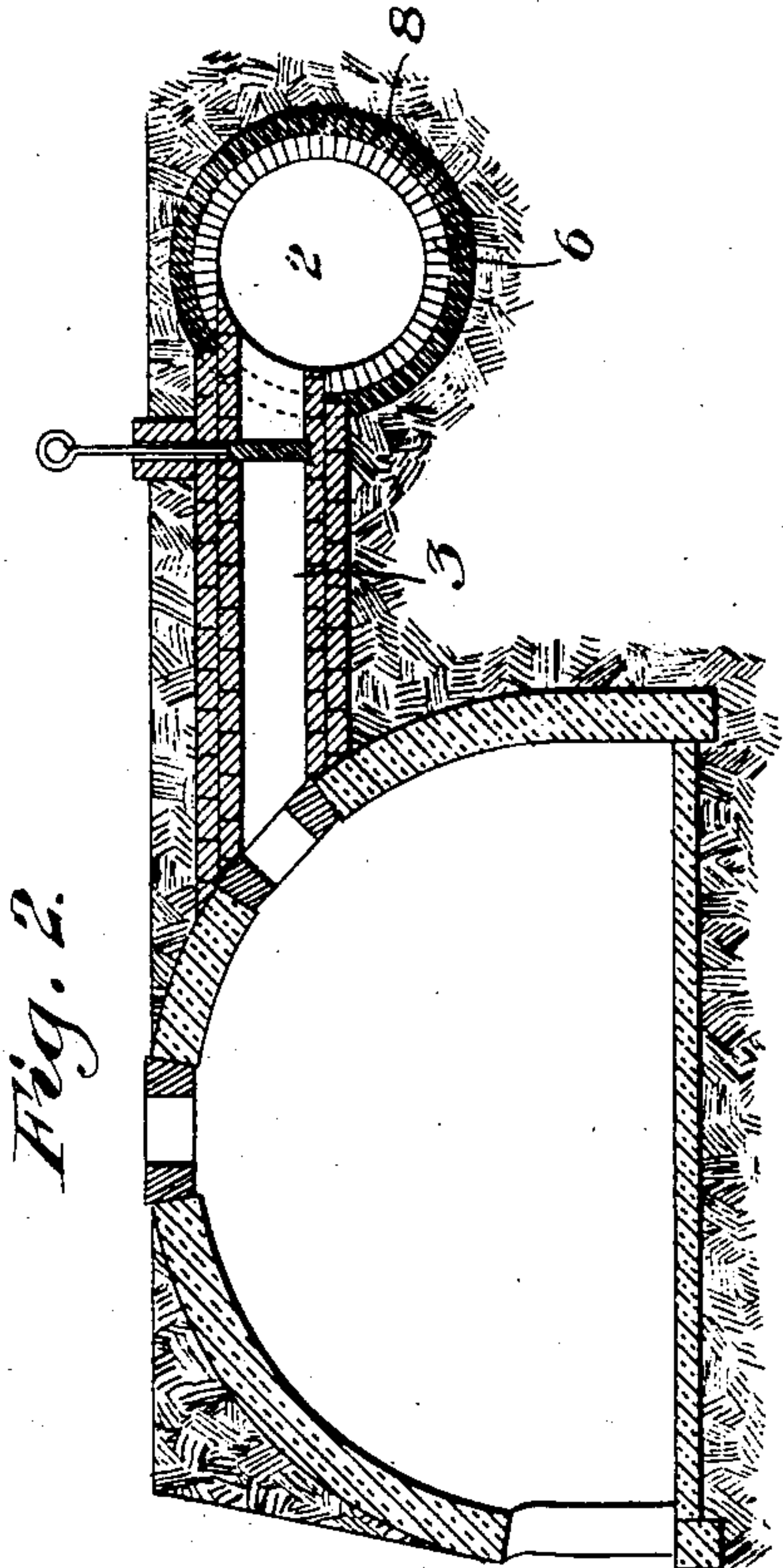
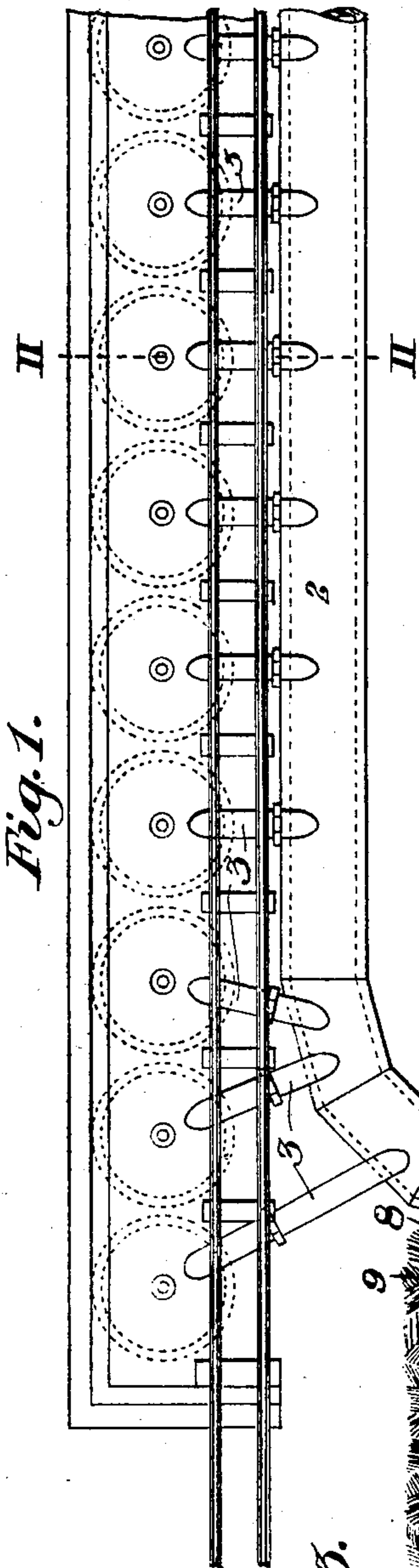


No. 762,700.

PATENTED JUNE 14, 1904.

C. C. GADD.
GAS CONDUIT CONSTRUCTION.
APPLICATION FILED MAR. 21, 1904.

NO MODEL.



Witnesses:
E. V. Mackenro
Chas. S. Ripley

Inventor:
Cecatus C. Gadd.
by O. M. Clarke
his Attorney.

UNITED STATES PATENT OFFICE.

CECRATUS C. GADD, OF UNIONTOWN, PENNSYLVANIA.

GAS-CONDUIT CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 762,700, dated June 14, 1904.

Application filed March 21, 1904. Serial No. 199,238. (No model.)

To all whom it may concern:

Be it known that I, CECRATUS C. GADD, a citizen of the United States, residing at Uniontown, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Gas-Conduit Construction, of which the following is a specification, reference being had therein to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of a portion of a coke-making plant, showing the connection therewith of my improved gas-conductor. Fig. 2 is a cross-sectional view, on an enlarged scale, indicated by the line II II of Fig. 1. Fig. 3 is a longitudinal sectional detail view of a portion of the gas-conductor, showing my improved construction.

My invention refers to improvements in hollow conducting structures for heated gases or other hot fluids or vapors, and is especially designed to meet the conditions usually accompanying the transportation of such mediums where the carrier or hollow structure is subject to wide variations in temperature. Ordinarily gases of this character are conveyed through tunnels, pipes, or hollow conducting structures composed of sheet metal either unlined or lined with brickwork or suitable refractory material, and it is usually the practice to provide at suitable intervals expansion-joints of different kinds providing for variations in the lengths of the structure owing to the changing conditions. All such devices are expensive and usually unsatisfactory in their operation and frequently not applicable to local conditions present in plants of the general character to which my invention is applied.

The conducting structure used by me is composed of circular courses of brickwork, as shown in the drawings, preferably two or more separate courses, providing the interior cylindrical channel 2. This constitutes the main trunk-line, to which by branch connections 3 the gas from each opening is supplied and from which by similar connections 4 it is taken off for the purpose of burning under boilers 5 or wherever it may be desired to utilize the gas. It may likewise be discharged

to a stack or other point of disposal. The inner cylindrical lining is composed of separate sections 6, of brickwork, and between each section is an annular space 7 for the entire circumference. Each section, which is ordinarily about twelve to fourteen feet long, is thus entirely separated from the adjacent section at each end. Surrounding the inner sections are similar cylindrical sections 8, of brickwork, overlapping the space 7 so as to entirely close it, while between the ends of the adjacent sections 8 are intervening annular open spaces 9, likewise extending entirely around between the ends of adjacent outer sections 8. This construction is continuous, as shown, of any length desired to provide the proper length of conduit, tunnel, or channel. The entire structure, as shown in Fig. 2, is supported in and surrounded by earth or any other suitable filling material.

It will be observed that the outer annular space 9 is located somewhat adjacent to the inner annular space 7, and in practice I have found that an overlapping distance of about one foot gives satisfactory results. Ordinarily there is no binding engagement between the inner and outer cylindrical courses, especially adjacent to the intervening annular spaces, and the result of this construction is that when heated by the contained gases the sections 6 and 8 will expand entirely independent of each other and without any buckling, warping, or interfering due to the intervening spaces. It is obvious that the inner course 6 will be subjected to the greatest heat and that its expansion would vary from that of the outer course, so that each course is thus permitted to expand entirely independent of the other. It is also obvious that additional cylindrical courses may be laid around the two courses 6 and 8, if desired, care being taken to arrange the intervening annular spaces so as to break joint in the manner already described.

My improved construction provides for the various conditions and peculiarities present with the material employed and under the heat action to which it is exposed.

In practice I have succeeded in entirely overcoming and obviating the various serious,

expensive, and troublesome breakages and distortions of gas-conducting brick construction as in ordinary practice, and the advantages of my invention are due to the particular arrangement of the interfitting courses in the manner which I have described.

It will be understood that the dimensions, number of courses, kind of brick, and the various other elements which control the particular design and construction are within the province of the designing engineer and are to be determined by the conditions and circumstances according to each case.

The invention is applicable to curved as well as straight conduits, and all such changes and variations as I have indicated are to be considered as within the scope of the invention and of the following claims.

What I claim is—

1. The combination of inner and outer cylindrical sections of brickwork provided with intervening annular spaces, located in different transverse planes, substantially as set forth.

2. The combination of inner and outer cylindrical courses of brickwork providing an interior conduit, said courses being independent of each other and terminating in different transverse planes, with annular separating-spaces between the ends of the adjacent courses, substantially as set forth.

3. The combination of inner and outer cylindrical courses of brickwork composed of

alining sections inclosing an interior conduit, said sections overlapping each other and terminating in different transverse planes, with annular separating-spaces between the ends of the adjacent alining sections, substantially as set forth.

4. A conduit for hot gases comprising an inner series of cylindrical sections of brickwork in alinement with each other, providing an interior open continuous conduit, with annular spaces between the ends of adjacent sections; and an outer series of cylindrical sections of brickwork in alinement with each other, overlapping the ends of said inner sections, with annular spaces between their ends, substantially as set forth.

5. A conduit for hot gases comprising an inner series of cylindrical sections of brickwork in curved alinement with each other, providing an interior open continuous conduit, with annular spaces between the ends of adjacent sections; and an outer series of cylindrical sections of brickwork in alinement with each other, overlapping the ends of said inner sections, with annular spaces between their ends, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CECRATUS C. GADD.

Witnesses:

CHAS. M. FEE,
MILTON MORRIS.