

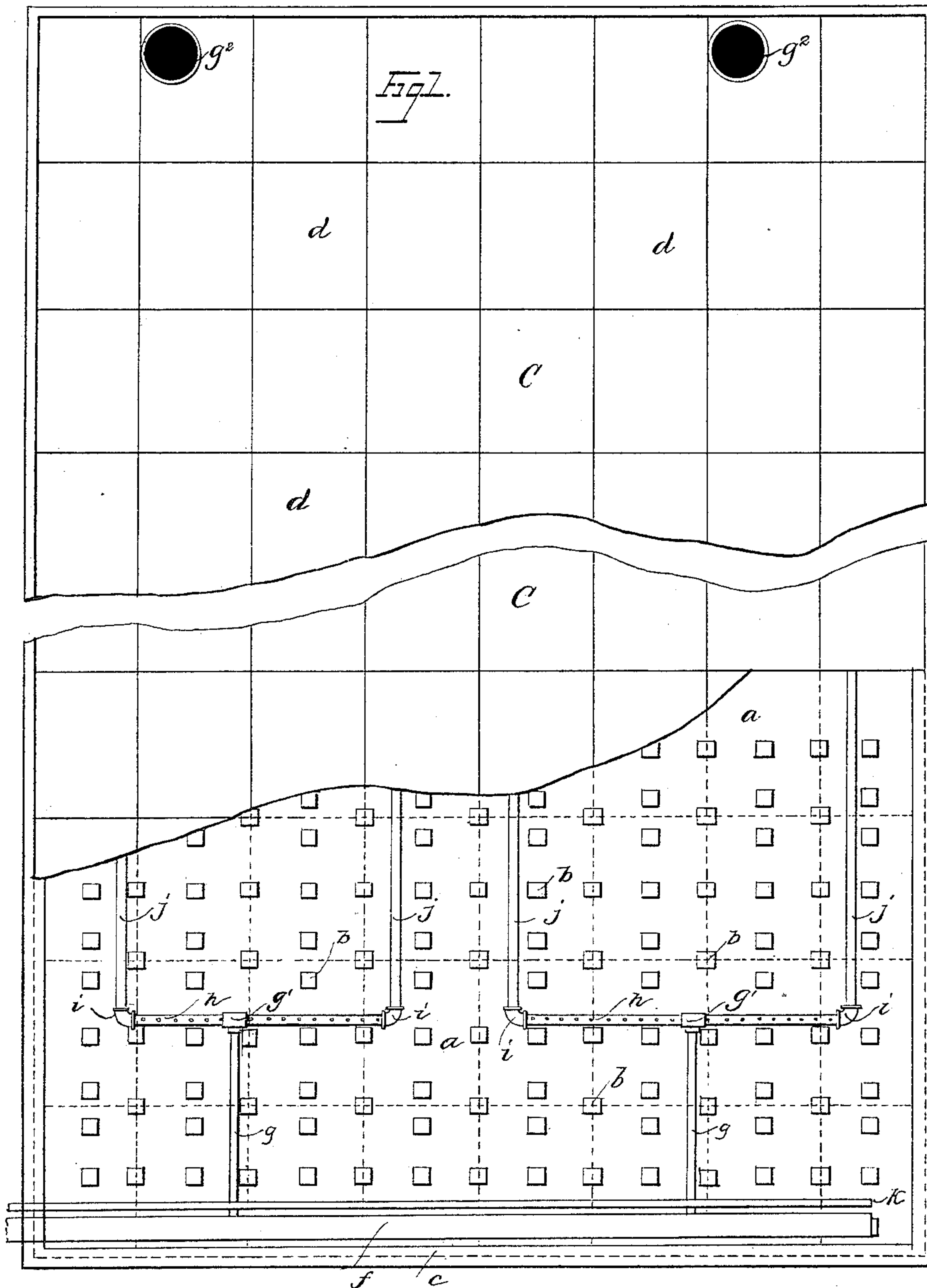
(No Model.)

2 Sheets—Sheet 1.

G. B. MERRILL.
BRICK DRYING APPARATUS.

No. 399,275.

Patented Mar. 12, 1889.



Witnesses.
Edw. H. Perry.
Frank B. Dyer.

Inventor.
George B. Merrill
by Geo. W. Dyer
Attorney.

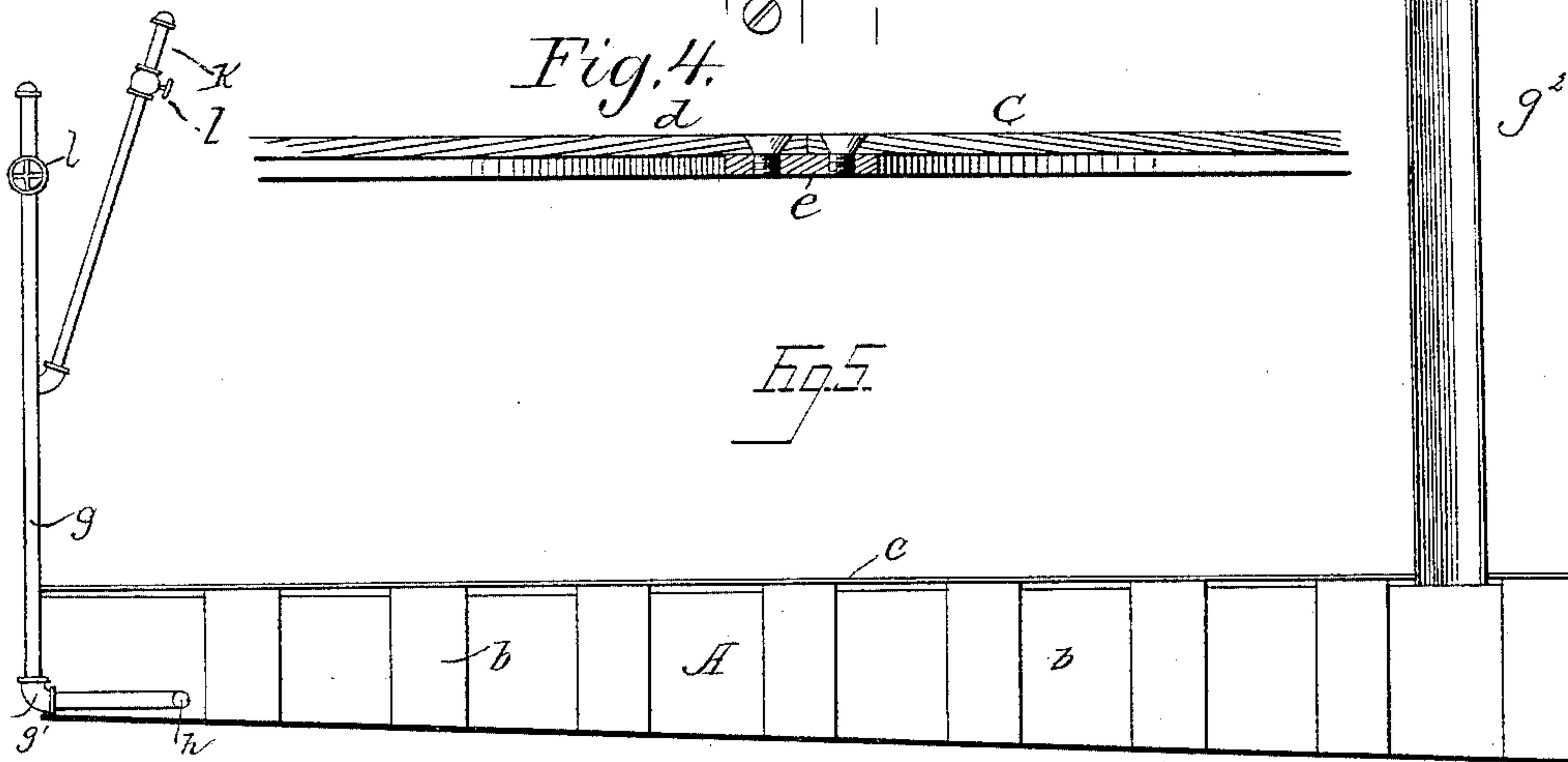
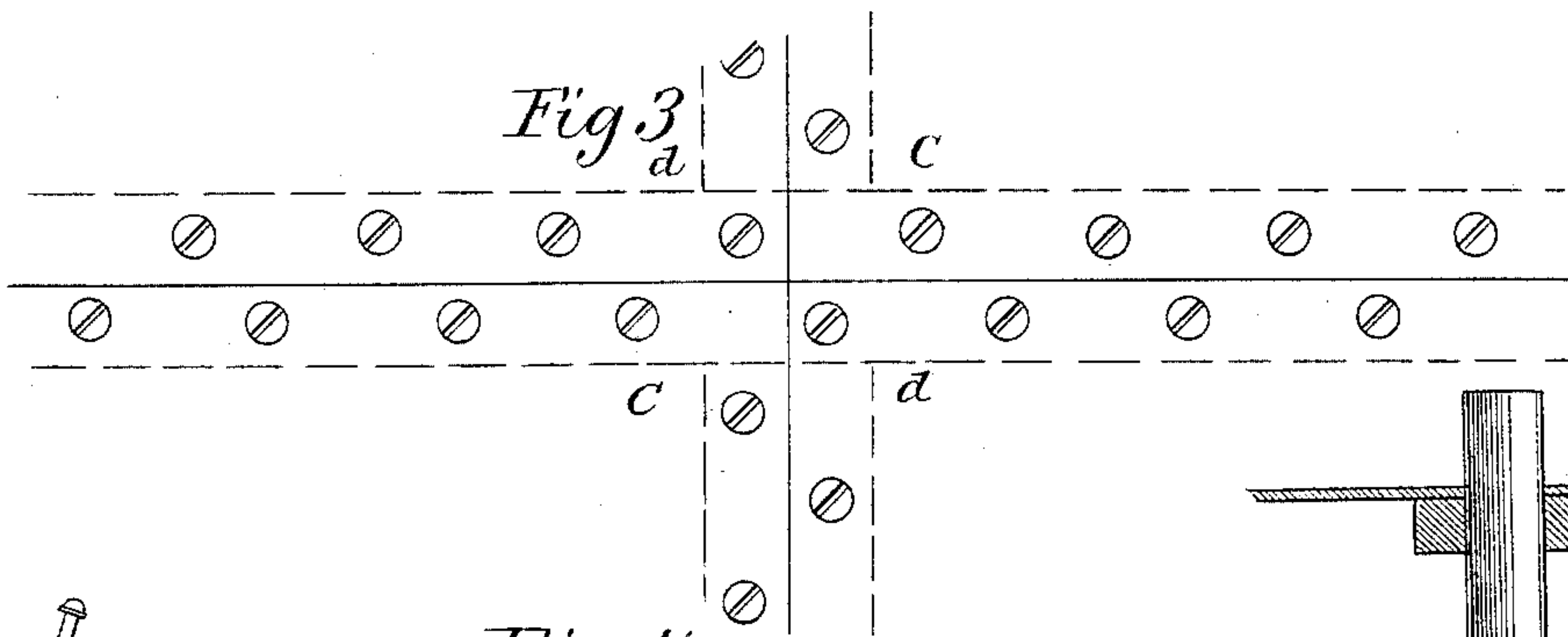
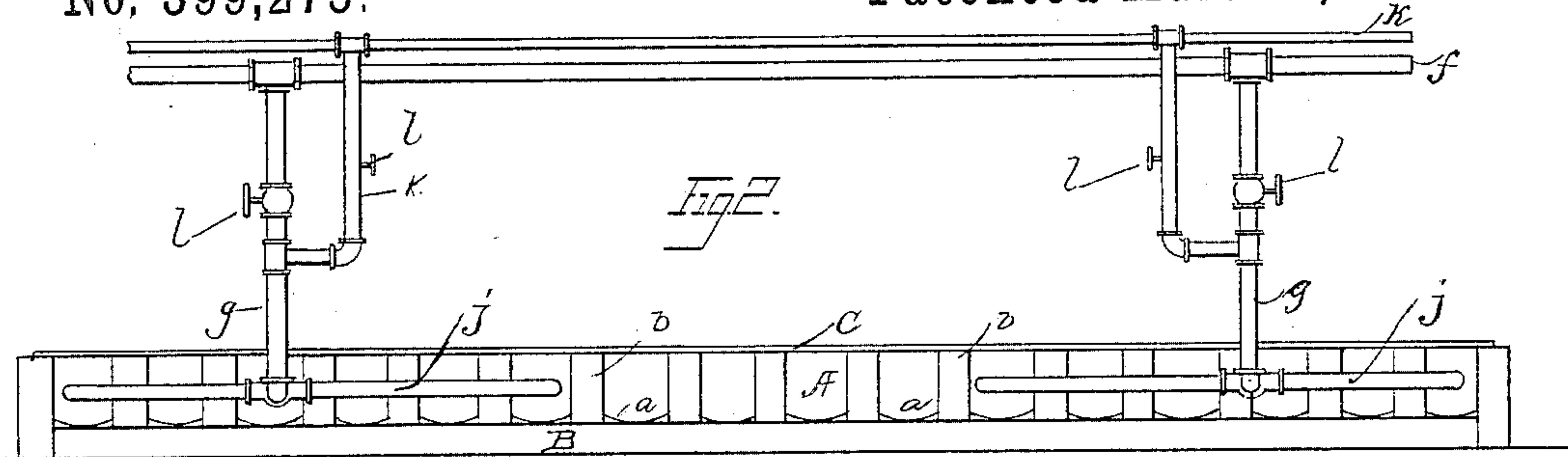
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UNITED STATES PATENT OFFICE.

GEORGE B. MERRILL, OF LOCK HAVEN, PENNSYLVANIA.

BRICK-DRYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 399,275, dated March 12, 1889.

Application filed September 15, 1887. Serial No. 249,738. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. MERRILL, a citizen of the United States, residing at Lock Haven, in the county of Clinton and State of Pennsylvania, have invented certain new and useful Improvements in Brick-Drying Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in apparatus for drying brick preparatory to burning, said apparatus being so constructed that it will require practically no expense to keep the same in active operation, and which will accomplish the desired results thoroughly and quickly.

It is a well-established fact that to properly relieve freshly-molded bricks of their moisture by drying by artificial heat a uniform but not excessive temperature is required, and I have determined by experiments that the heat obtained by the radiation of steam is preferable to all others. I have further found from the same source that this steam can be inexpensively obtained by utilizing the exhaust of the operating engine prominent in any large brick-yard. Should this exhaust, from any defect in the construction of my apparatus or from any leak in the conducting-pipes, prove ineffectual in maintaining the correct temperature required for the proper and thorough drying of the bricks, live steam direct from the boiler can be used as an auxiliary to this exhaust-steam.

The principal novelty of construction in my device consists in an air-tight chamber forming the floor of the drying-room, having a boiler-iron top, upon which the bricks to be dried are placed, and which is adapted to be heated by the above-mentioned exhaust or live steam, or both, as well as in other details of construction, which will be hereinafter more fully described and claimed, and which are fully illustrated in the accompanying drawings, wherein like letters refer to corresponding parts in the several views, and in which—

Figure 1 is a plan view of my apparatus, showing the "drying-floor" as being partly removed; Fig. 2, a longitudinal section of the

same; Figs. 3 and 4 views showing the manner of fastening the iron plates composing the drying-floor, and Fig. 5, a longitudinal sectional view of the apparatus.

A represents the heating-chamber provided with a floor composed of a series of concave surfaces, *a a a a*, slightly elevated at one end, and made, preferably, of concrete or cement laid on a grouting foundation, B; but it will be evident that where the ground is suitable this floor may be dispensed with. Directly above this floor, and supported upon the brick, stone, or iron piles or piers, *b b b b*, is another but iron floor, C, upon which the bricks to be dried are placed, and which is consequently termed the "drying-floor." The space formed between the floor *a a a a* and the drying-floor C, and between each of the piles or piers *b b b b*, is of sufficient width to admit of the free circulation of the heat and of the heat-conducting pipes, described hereinafter. The drying-floor C is composed of a number of rectangular boiler-iron quarter-inch plates, *d d d d*, the edges of which can be fastened in any suitable manner; but the preferable fastening is that illustrated in Figs. 3 and 4, and which can be described as follows:

Extending across the piles or piers *b b b b*, and properly arranged thereon, are the ribs or braces *e*, into which a series of internally-screw-threaded perforations are drilled. The plates *d d d d*, whose edges are adapted to meet together on each of these ribs or braces, are provided with a series of perforations, into which the countersunk set-screws are driven home, extending down into the perforations in the braces or ribs *e* and locking said plates securely thereto. Thus it will be seen that by this construction I am enabled to make a very strong but simple fastening, possessing the advantage of allowing any individual plate to be removed in case of any necessary repairs, and as all the screws are countersunk and flush with the plates no disfiguring marks will be impressed in the bricks placed thereon. This chamber is to be heated by exhaust-steam conveyed from the source of supply through the conducting-pipe *f*, running along the inside of the outside wall, *c*, of the drying-room. In climates where this conducting-pipe *f* would be subjected to se-

vere temperatures a covering of asbestos or any other suitable non-conducting material as a jacket for the same could be used with advantage. Extending down from this conducting-pipe and in through the wall *c* are the two branch pipes *g g*, each having free communication with said conducting-pipe at one end, and provided at the other end with an internally-screw-threaded T-joint, *g'*.
 10 Screwed into each of the free arms of these T-joints is a perforated pipe, *h*, provided at one end with an elbow, *i*, into which one end of another conducting-pipe, *j*, is screwed. The latter pipes *j j j* extend about half the length
 15 of the floor *a a* and pass down between two of the rows of the piles or piers *b b*.

In the extreme end of the iron drying-floor farthest from the conducting-pipe *f* are a series of vents, *g'' g''*, leading into the outside atmosphere or to any convenient point. The upper ends of these vents extend above the roof the drying-room, and, precisely like any chimney or stack, cause a draft up them which creates a partial vacuum in the heating-chamber, and the exhaust-steam from the conducting-pipes in endeavoring to replace this vacuum will move rapidly toward these vents or stacks, out of which it will pass. Now as this steam passes out of these vents
 30 it would necessarily indicate that all air has been expelled from the heating-chamber, and consequently the steam will heat the drying-floor directly. These vents also act as a relief in case of over-pressure in the heating-chamber by conveying the steam off directly and not allowing it to accumulate inside of said heating-chamber.

If live steam in connection with the exhaust-steam should be desired, a conducting-pipe, *k*, leading from the boiler of the engine and connected to the pipe *g*, can be used, care being taken to provide this conducting-pipe *k* with any good and effective "cut-off" valve, and as a regulator a similar valve, *l*, should
 45 be attached to the pipe *g*, so that the supply of exhaust-steam can be increased or diminished at will.

In using my device the bricks are placed side by side on the drying-floor and the exhaust-steam turned on in the conducting-pipe *f*, and this steam in escaping through the perforations in the pipe *h* and through the pipe *j* will be equally distributed throughout the chamber formed between the floor *a a*
 50 and the drying-floor *C*, and will in time pass out through the openings *g'' g''*, but not until the drying-floor is heated, and consequently the bricks placed thereon, and this heat in time will thoroughly dry them. Should this
 55 exhaust-steam become condensed inside of this chamber, the accumulated moisture will be carried off by reason of the incline of the floor *a a a*.

Although it is preferable to make the dry-

ing-floor of quarter-inch iron, I do not wish to be limited to the exact thickness of metal for the same.

It will be evident that the heating-chamber can be divided into two or more sections by means of suitable partitions, and in consequence of this construction one of these sections may be heated by exhaust-steam and the other can be heated by live steam by slight changes in the arrangement of the conducting-pipes, which can be accomplished by the agency of mechanical skill alone; and it will be further evident that an apparatus of my construction can be used advantageously in the drying of lumber, &c.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a brick-drying apparatus, the combination of a metallic drying-floor made in sections and laid on piles or piers, with clear open air-tight space beneath such floor, and between the piles or piers a system of conducting-pipes beneath said floor, discharging steam into said open space, and a vent or vents, *g''*, extending up through the drying-floor, substantially as described.

2. In a brick-drying apparatus, the combination, with the metallic drying-floor made in sections and held on piles or piers, having an open space beneath it, and provided with the vent or vents *g''* at the rear end, connecting the space under the drying-floor with the outside atmosphere, of the pipes *f*, for exhaust-steam, and the pipes *k*, for live steam, both connected with pipes arranged beneath said floor, said live and exhaust steam conducting pipes extending above the floor, and there provided with controlling-valves *l*, substantially as and for the purpose set forth.

3. In a drying apparatus, the combination, with an inclined concrete or cement floor and an iron drying-floor supported above the same on piles or piers, of a system of steam-conducting pipes arranged between the two, substantially as described.

4. A drying apparatus consisting of an inclined concrete or cement floor made in concave inclined sections laid on grouting, an iron drying-floor supported above the same on piles or piers and made in sections fastened securely together and provided with outlet-vents at its extreme end, and a system of steam-conducting pipes leading into the chamber formed between the inclined floor proper and the drying-floor, and provided at a convenient point or points with regulating-valves, substantially as described.

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

GEORGE B. MERRILL.

Witnesses:

J. A. BICKFORD,
 L. KARSKADDEN.