

No. 886,251.

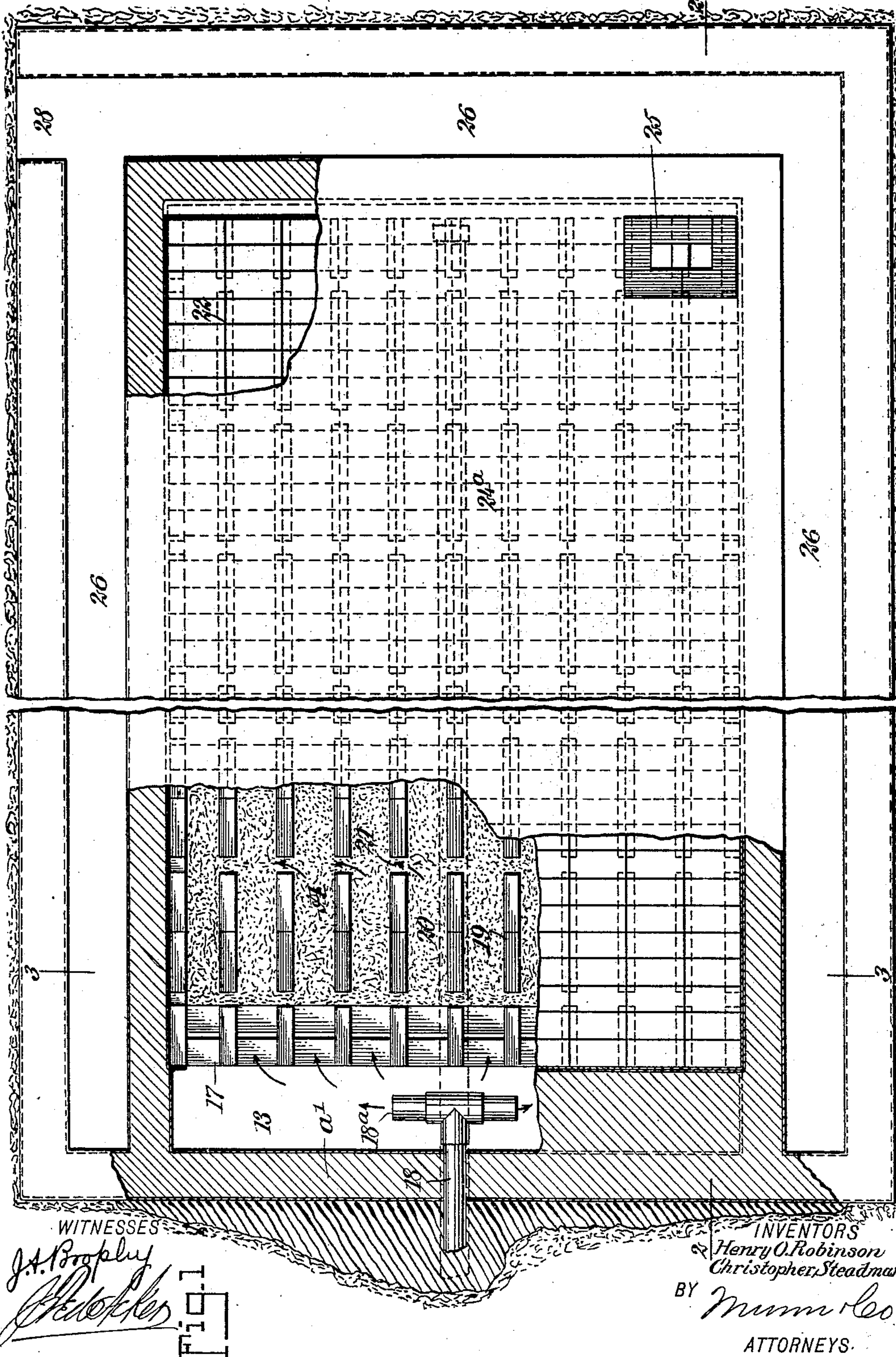
PATENTED APR. 28, 1908.

H. O. ROBINSON & C. STEADMAN.

DRYING FLOOR.

APPLICATION FILED JAN. 23, 1908.

2 SHEETS—SHEET 1.



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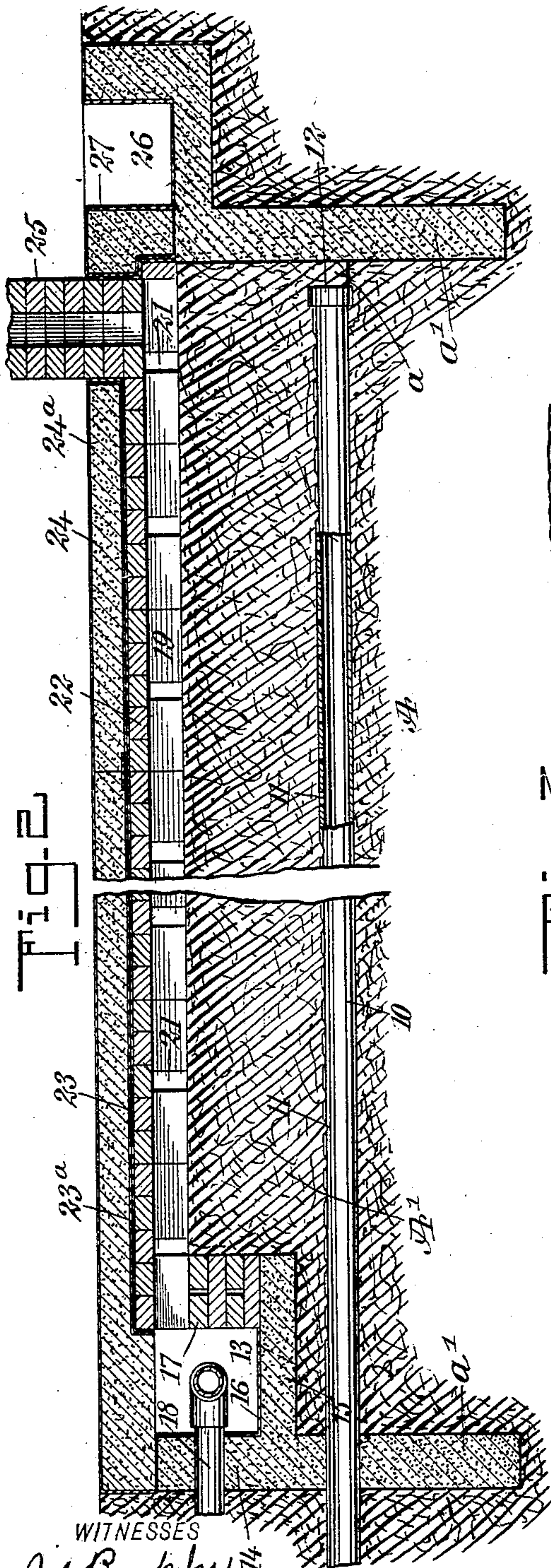
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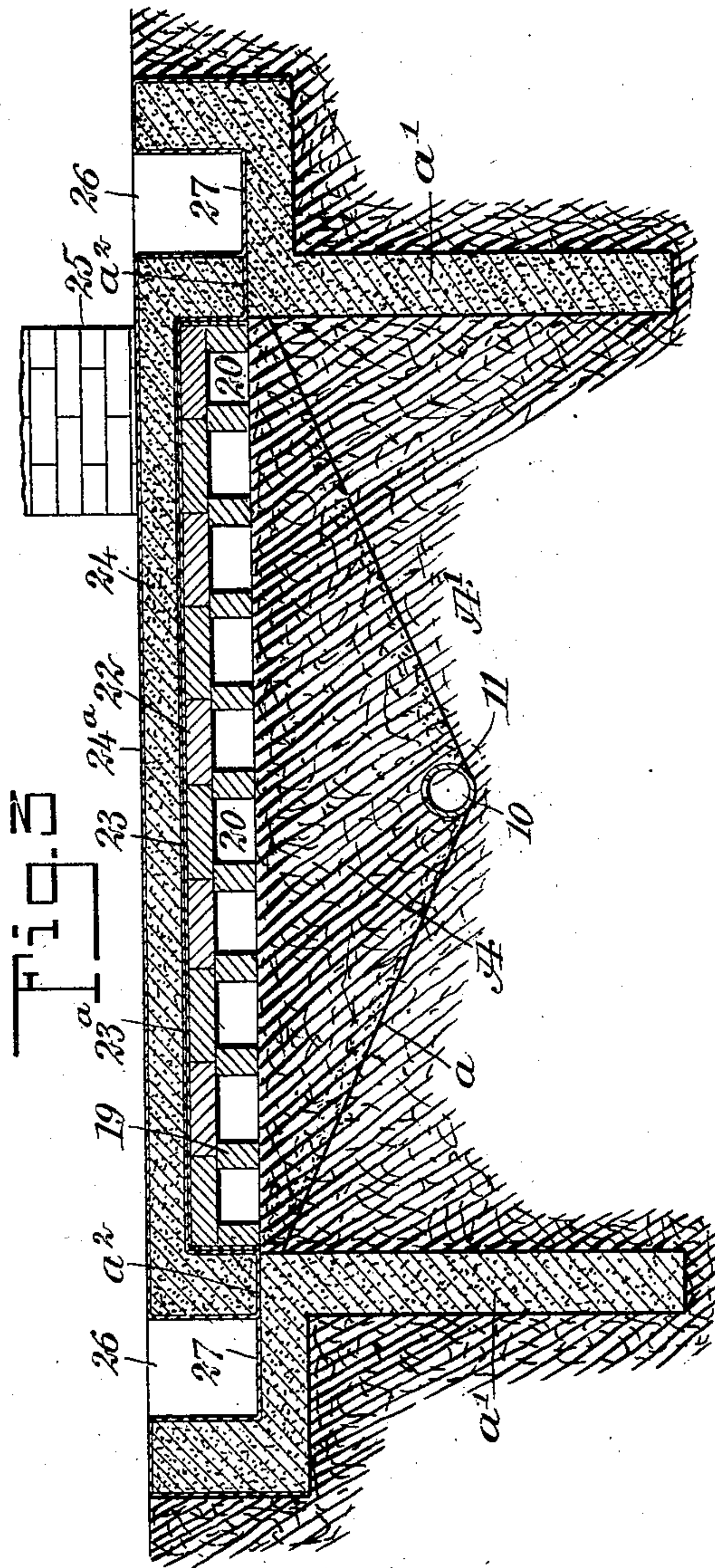
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2 SHEETS—SHEET 2.



WITNESSES

J. A. B. Gophy
[Signature]



INVENTORS
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UNITED STATES PATENT OFFICE.

HENRY O. ROBINSON, OF BROOKLINE, AND CHRISTOPHER STEADMAN, OF SALEM,
MASSACHUSETTS.

DRYING-FLOOR.

No. 886,251.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed January 23, 1908. Serial No. 412,229.

To all whom it may concern:

Be it known that we, HENRY O. ROBINSON, a citizen of the United States, and CHRISTOPHER STEADMAN, a subject of the King of Great Britain, and residents, respectively, of Brookline, in the county of Norfolk and State of Massachusetts, and Salem, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Drying-Floors, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide a heating floor for drying green bricks and like materials, the floor being so constructed that various heating agents can be utilized, namely, exhaust steam, chimney gases, or waste heat from kilns, and to so construct the floor that it is impervious, and so that the heat will be consistent throughout the entire area of the floor.

It is a further purpose of the invention to provide for the escape of any moisture that may be present or that may collect beneath the brick receiving face of the floor.

The invention consists in the novel construction and combination of the several parts as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improved floor, parts being broken away; Fig. 2 is a longitudinal section taken practically on the line 2—2 of Fig. 1; and Fig. 3 is a transverse section taken substantially on the line 3—3 of Fig. 1.

A and A' represent beds of earth over which the improved floor is to be erected, A being a natural porous body, as sand or gravel, and A' consists preferably of a natural dense body, for example, clay, and the beds where they join are inclined downward from their sides to a central point, as is shown at *a* in Fig. 3, to conduct the water of condensation to a drain pipe 10, located at the lowest point in such incline, which drain pipe is provided with any desired number of apertures 11 whereby to receive and take up the moisture brought from the bed A'. This drain pipe 10 is provided at its inner end with a cap 12, or is closed in any other suit-

able manner. The water drained from the pipe 10 will be hot and may be used to temper the clay from brick machines, producing better and more economical results than where cold water is used.

Surrounding the aforesaid beds A and A' is a continuous wall *a'* of cement or similar material. This wall *a'* is impervious to the passage of steam and extends downward into the bed A to the ground water level. The upper face of the wall *a'* is practically in horizontal alinement with the bed A', and the upper face of this wall *a'* may or may not be covered with suitable waterproofing material *a²* as shown particularly in Fig. 3.

At one side or end, preferably at one end of the aforesaid beds A and A', a chamber 13 is formed that is adapted to receive heat. This chamber is bounded preferably by a vertical wall 14 of concrete, and a bottom wall 15 of the same material, and upon the said bottom wall 15 at or adjacent to its inner edge, a wall 17 is erected, preferably formed of bricks laid loosely one on the other, the upper face of the said wall 17 being practically in horizontal alinement with the upper face of the aforesaid bed A', and this chamber 13 may be provided with a covering 16 of waterproofing material of any suitable description, but such a covering is not absolutely necessary. A pipe 18 is carried into the said chamber 13 from any source of heat supply, the said pipe 18 being preferably connected with a source of exhaust steam supply, and the pipe 18 where it is located in the heat supply chamber 13 is shown as provided with a T-head 18^a, but we do not confine ourselves to this construction or arrangement.

The bricks 19 are placed on edge on the upper bed A', the bricks 19 being arranged in parallel rows, as is illustrated in Figs. 1 and 2, and the said bricks 19 are so associated that longitudinal passageways 20 are produced between them, and likewise transverse channels 21, as is also best shown in Fig. 1, and the said longitudinal channels 20 are in direct communication with the heat supply chamber 13, as is also shown in Fig. 1. A solid floor is laid upon the bricks 19 and said floor, which is designated as 22, is constructed from bricks laid close to one another, but instead of bricks being employed in the construction of the said floor, tiles or their equivalents may be employed.

The upper covering of bricks or tiles 22

that constitutes practically the upper portion of the floor and forms the flues through which the heat is conducted, is covered by a grouting 23 of cement or the like, and this
 5 grouting is covered by a waterproofing 23^a of coal tar or the like, in fact, any material may be employed to cover the upper layer of bricks or tiling 22 that will render them im-
 10 pervious to water or steam. At the sides of the floor the bricks 19 are laid close together, the transverse channels 21 being omitted, and in the same manner at the end of the floor opposite that at which the heating agent is admitted, the longitudinal passage-
 15 ways 20 are closed by a row of bricks placed across them, and the grouting 23 and waterproofing 23^a is extended over the sides of these bricks, and into contact with the water-
 20 proofing a^2 on the upper face of the foundation wall a' , as is shown in Fig. 3. A covering 24 of concrete of suitable thickness is laid over the waterproofing material 23^a, and this layer 24 of concrete is made perfectly smooth at the top and constitutes a support
 25 for the green bricks to be dried. This concrete covering 24 is provided with a layer 24^a of any material that will tend to prevent water percolating through the bed to or from the channels beneath them. This concrete
 30 covering 24 may be reinforced by wire or a similar insertion, as is the common practice in reinforced concrete constructions.

We desire it to be also understood that the bed may be covered by a shed, although such
 35 construction is not shown, and at portions of the bed, preferably in the corners remote from the admission of the heating agent, chimneys 25 are erected whereby to take off any excess of steam or moisture that might
 40 arise from the condensation of the steam passing through the channels and passageways of the bed.

A gutter 26 is erected around the sides and one end of the bed, the gutter at the end
 45 of the bed being opposite that at which the heating agent is introduced, and the said gutter is in communication with any suitable source of drainage, the communication being through the medium of a suitable channel 28,
 50 as is indicated in Fig. 1. The gutter 26 may be lined with a material 27 that will prevent water percolating through it, and in the general construction of said gutter, concrete is employed, as is illustrated in Fig. 3.

55 In operation, the floor accumulates a light covering of fine sand or dry pulverized clay from the brick, which prevents the green bricks from adhering to the surface of the floor and permits them to shrink freely in the
 60 drying process.

The main object of the invention is to provide a floor substantially as has been described, to dry freshly molded bricks, and other like material, without the use of cars,
 65 pallets, rails, ties, or turntables, and transfer

cars, a steam pipe or steam pipe racks, or any iron or metal members. Furthermore, it has been the object of the invention to provide a drying floor that will approach as
 70 nearly as possible to the natural conditions of drying, inasmuch as the covering of the floor may be made thin where it is desired to dry quickly, and increased in thickness for the slow drying of tender material. Fur-
 75 thermore it is an object of the invention to provide a floor that will dry bricks or other material by radiant heat and exposure to the natural air, and by this means the bricks when burned will be of the true color of the
 80 clay and not stained and discolored by exposure to sulfurous fumes and acid gases as occurs in many other processes of drying.

On the floor described, the entire surface of the brick in contact with the floor re-
 85 ceives a uniform and constant mild heat that warms the bricks and expels the moisture gradually and consistently, and produces a dry brick perfectly sound, whereas in other drying systems of which we have knowledge,
 90 the bricks are placed upon steel pallets and the pallets are placed on or in contact with heated pipes, and in such treatment one portion of the bricks is subjected to greater heat than other portions, thus the most
 95 highly heated portions are dried soonest, and such dried portions shrink from the less hardened portions, causing flaws and checks, rendering the bricks unsound. A similar defect exists in the process of tunnel drying,
 100 so that where the freshly molded bricks are placed on cars and are exposed to a current of heated air that rapidly dries and shrinks the outside surface of the bricks, the heart of the bricks remains damp and expanded.
 105 This process necessarily causes the bricks so treated to check on the surface, rendering them unfit for face bricks or exposed work, and said checking at a subsequent burning process is enlarged frequently to such an extent as to break the brick.
 110

In our drying floor there are no exposed metal or wood working parts, hence there is no expense for maintenance caused by the corrosion of the metal and the decay and
 115 breaking of the wood, also in our drying floor the heating medium employed would otherwise go to waste, therefore the cost of operation is reduced to a minimum.

Having thus described our invention, we claim as new and desire to secure by Letters
 120 Patent,—

1. A drying floor for green bricks, consisting of a natural bed, an impervious wall surrounding said natural bed, tiles laid upon the said bed, forming longitudinal and trans-
 125 verse channels, a tile covering for the tiles so laid, and a moisture-proof covering for the overlying tiles.

2. In a floor for drying green bricks, a natural foundation, an impervious wall sur-
 130

rounding said natural foundation, bricks laid in parallel lines on said foundation, providing between them longitudinal and transverse channels, a source of heat supply in communication with said channels, an overlying and inclosing series of bricks or tiles laid upon those supported by the said natural bed, a covering of impervious material for the overlying tiles, and a concrete covering for said impervious material.

3. In a floor for drying green bricks, a natural foundation, an impervious wall surrounding said natural foundation, bricks laid in parallel lines on said foundation, providing between them longitudinal and transverse channels, a source of heat supply in communication with said channels, an overlying and inclosing series of bricks or tiles laid upon those supported by the said natural bed, a covering of impervious material for the overlying tiles, and a concrete covering for said impervious material, a flue connected with the said channels, and a drain pipe located in the said natural bed

4. In a bed for drying green bricks, a natural foundation, an impervious wall surround-

ing said natural foundation, a chamber formed at one side of the foundation, a heating agent introduced into the said chamber, a series of bricks laid in parallelism on the said natural foundation, forming between them transverse and longitudinal channels in communication with the chamber into which the heat is introduced, a series of bricks laid in close order, located upon and over those that are supported by the natural bed, a grouting of cement covering the closely laid bricks, a waterproofing covering the grouting, a bed of concrete covering the said waterproofing, a flue connected with the channels formed by the bricks laid on the natural bed, a drain pipe located in the said natural bed, and a gutter formed around the said bed.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HENRY O. ROBINSON.

CHRISTOPHER STEADMAN.

Witnesses:

PETER W. COSTELLO,
GEORGE L. CURTIS.