

E. H. CALLAWAY.
BRICK DRIER.

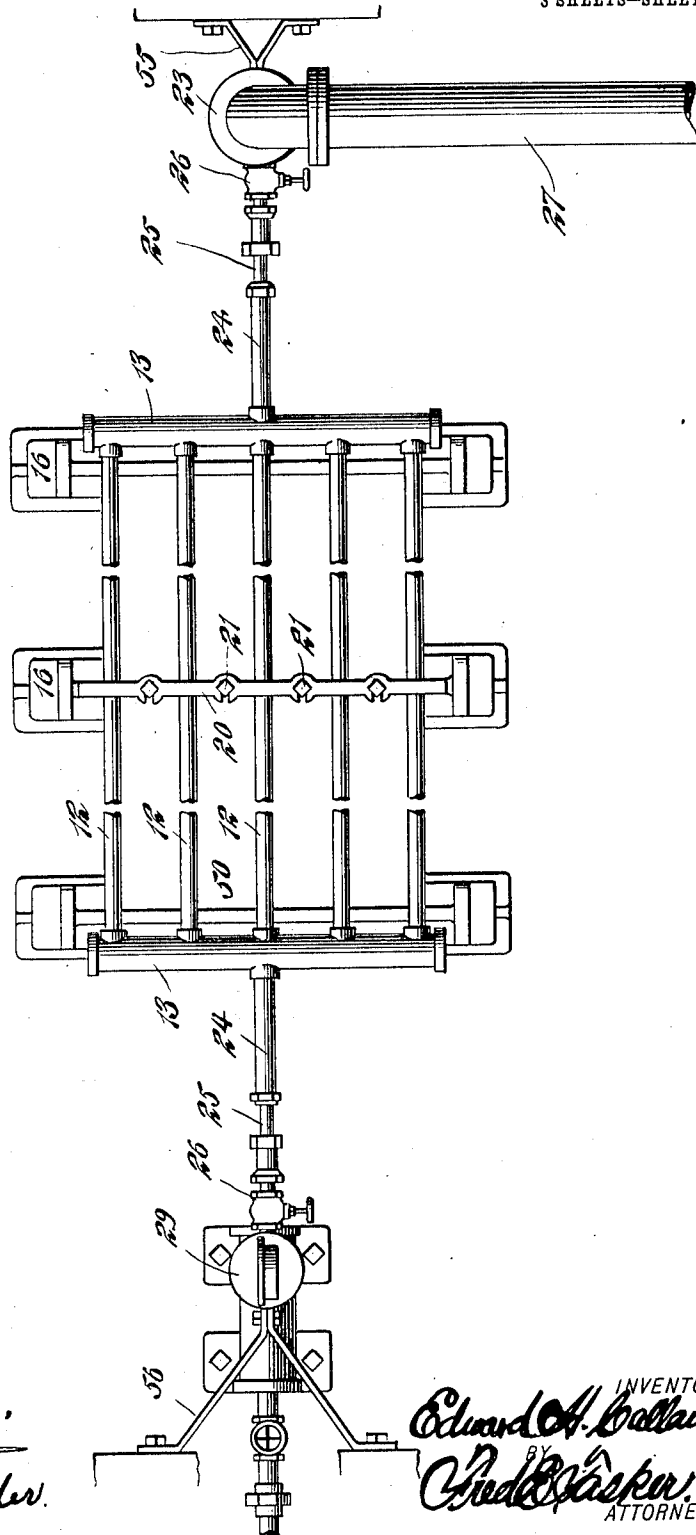
APPLICATION FILED MAR. 25, 1907. RENEWED JAN. 8, 1912.

1,020,186.

Patented Mar. 12, 1912.

3 SHEETS—SHEET 1.

FIG. 1.



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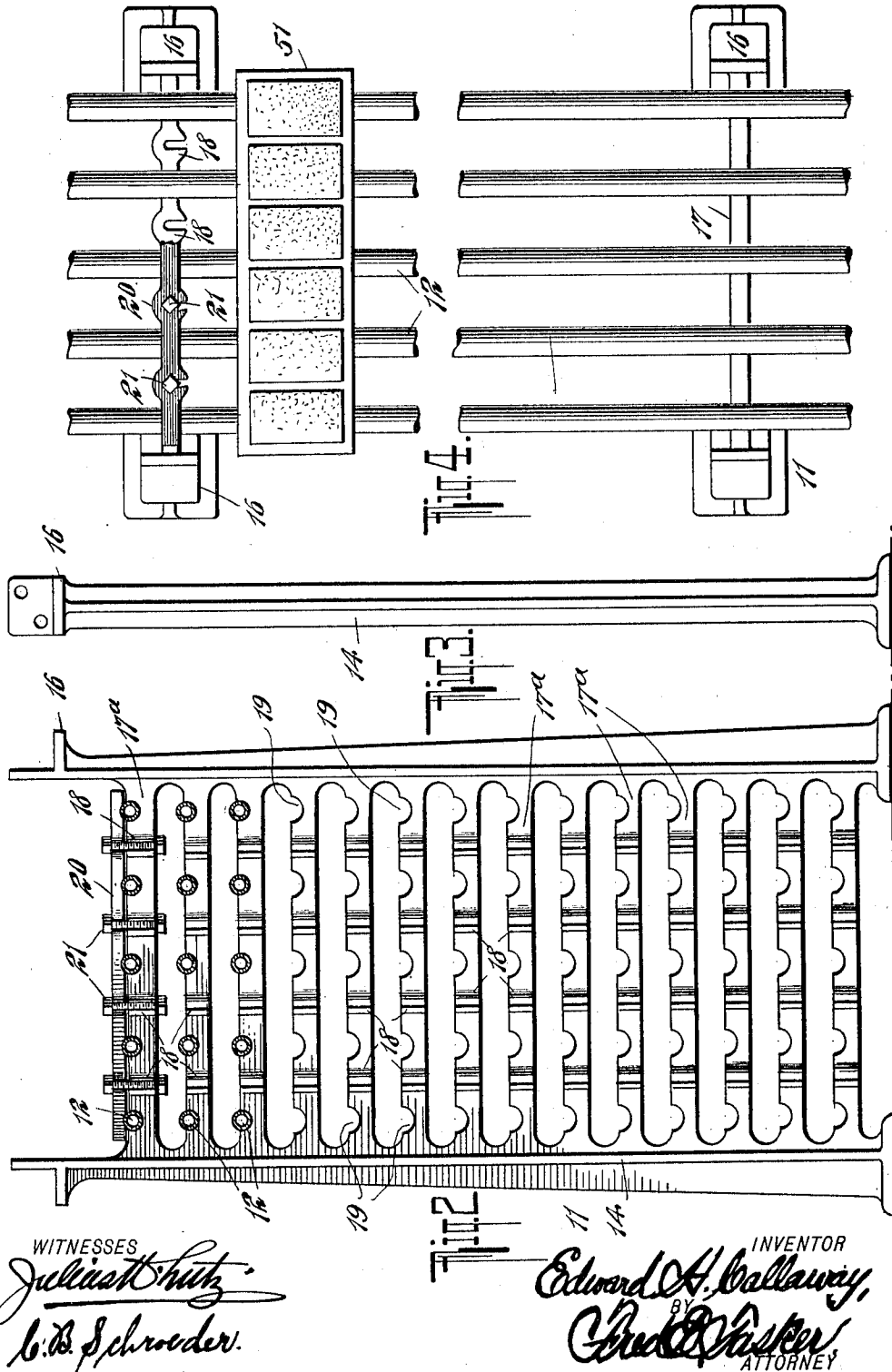
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3 SHEETS—SHEET 2.



WITNESSES
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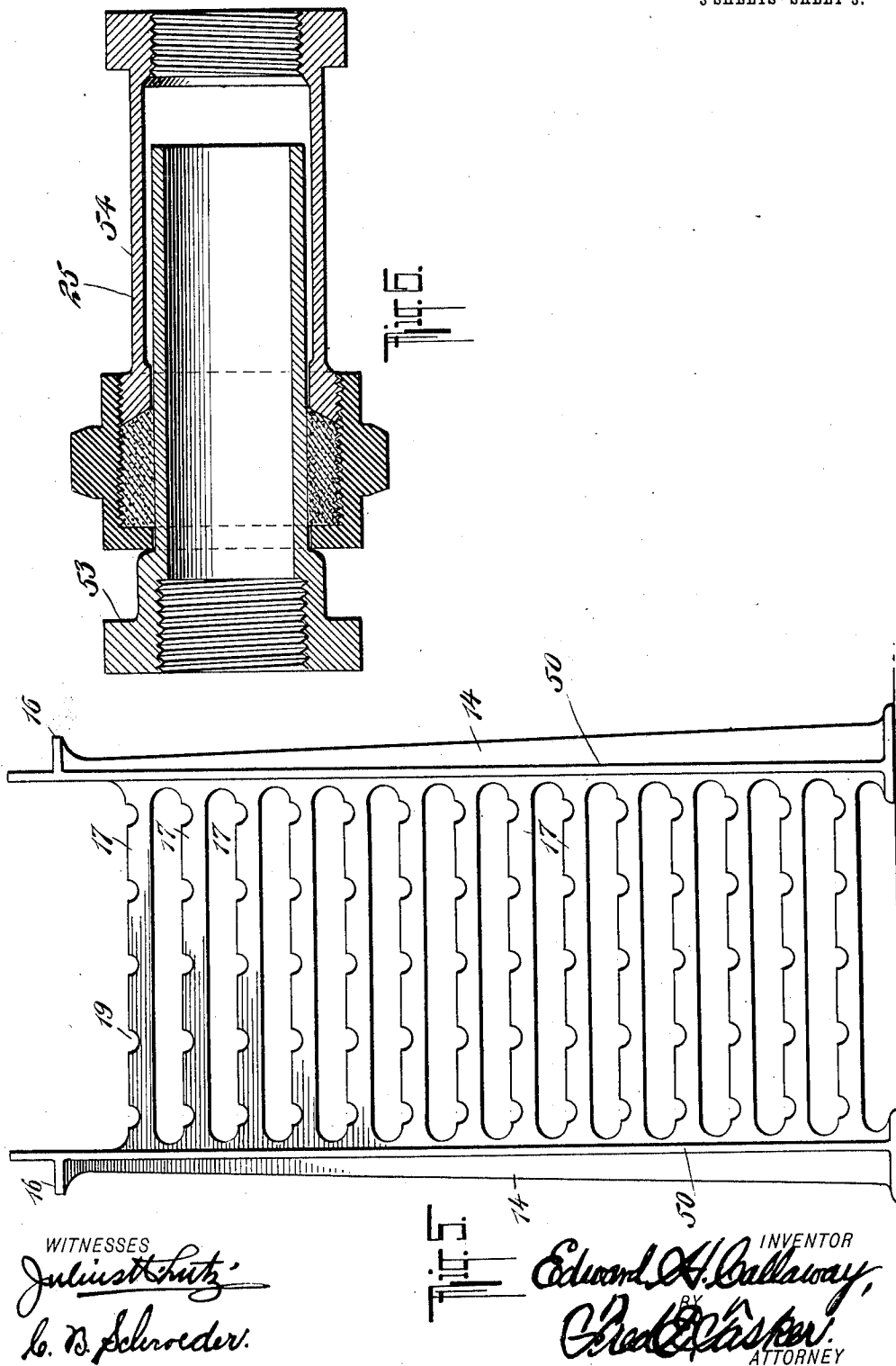
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3 SHEETS—SHEET 3.



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Fig. 5

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UNITED STATES PATENT OFFICE.

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BRICK-DRIER.

1,020,186.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed March 25, 1907, Serial No. 364,503. Renewed January 8, 1912. Serial No. 670,128.

To all whom it may concern:

Be it known that I, EDWARD H. CALLAWAY, a citizen of the United States of America, and a resident of Westfield, in the county of Union, State of New Jersey, have invented certain new and useful Improvements in Brick-Driers, of which the following is a specification.

This invention relates to a new and improved apparatus for drying bricks, tiles and like substances after they have been formed by the brick-making or other machines.

The principal object of my invention is to provide a drying shelf composed of a horizontal series of pipes so arranged and constructed that they can expand and contract more freely without loosening or disarranging the mechanism.

With these and other objects in view, my invention consists in the novel features of construction, combination and arrangement of parts, and various details and peculiarities thereof, substantially as will be hereinafter fully described and finally pointed out in the claims.

In the accompanying drawings, illustrating my invention, Figure 1 is a top or plan view of my complete invention as applied to a system of steam brick-drying pipes and their connections. Fig. 2, a detail view of a central standard to which the pipes are locked. Fig. 3, an edge view thereof. Fig. 4, a detail of one of the pipe shelves in which parts are cut away to better show the construction and a pallet of bricks is placed on the pipes for drying. Fig. 5, a detail view of one of the pipe supporting standards for loosely sustaining the pipes, and Fig. 6, a longitudinal section through one of the expansion joints which are interposed between the pipe shelves, at the receiving and discharge ends of the latter, and the manifolds.

Each drying rack consists of a series of horizontal shelves composed of steam pipes on which the bricks or other articles to be dried are placed, and means for sustaining said shelves, said means consisting of standards arranged at intervals in the length of the steam pipes. Of these standards there are two kinds, one being shown in Fig. 5, which is employed to loosely support the pipes at the ends of the shelves and at certain intervals throughout their length. The

other is shown in Fig. 2 and is used at the middle or neutral point of expansion of the steam pipes, and has a combined supporting and locking function, because it is provided with locking means which rigidly hold the pipes securely fastened thereto. The other standards, which for convenience will be numbered 50, loosely support the pipes, so that they can creep backward and forward in the act of expanding and contracting without disturbing the supports.

12 denotes the steam pipes, upon which suitable brick-carrying pallets 51 are directly placed, as illustrated in Fig. 4, the ends of these pipes being connected by means of headers 13. Each standard 50, as well as the other standard, which will be numbered 11, is formed on two upright legs 14 which are preferably supported at their lower end on a foundation of any suitable material. The upper ends of said legs are adapted to be bolted to any suitable beams, not shown, and are provided with integral brackets 16 on which said beams rest. Connecting the legs 14, which are preferably T-shaped in cross section, are horizontal cross pieces 17, in the case of standards 50, on which the steam pipes 12 rest, said cross pieces 17 being enlarged or provided with semi-circular seats 19 to receive the pipes. Each standard 50 is essentially cast in one piece so that the upright legs 14 and the cross pieces 17 are integral with each other. This integral feature of the standard is considered a great advantage over separable forms, in that it saves time and expense in construction, as well as adding durability and strength to the structure. In the case of the middle anchorage standard 11, the cross pieces 17^a are slightly modified by being provided with alternately extending vertically slotted bosses 18, in addition to having the semi-circular seats 19. The pipes 12 are arranged on the cross bars 17 and in the semi-circular seats 19 in horizontal superposed rows, whereby shelves for the brick-carrying plates 51 are formed. The pipes 12, of which there are preferably four or five in each shelf, as indicated in Figs. 1 and 4, although there may be any number, are clamped in the seats 19 of the middle standard 11 by means of cross strips 20, lying on the pipes (see Figs. 1 and 2) and bolted to the cross pieces 17^a by means of bolts 21 extending through enlarged and

slotted parts of said cross pieces and through the slots in the bosses 18, there being heads on one end of each bolt and nuts on the other end, so that said bolts may be effectually clamped in place for the purpose of binding and anchoring the cross pieces 20 down upon the pipes 12 so as to securely hold said pipes in the seats 19. Thus it will be seen that the pipes are securely anchored and locked at the central or neutral point of their length to the middle standard 11, and they are not locked to the other supporting standards 50, but merely rest loosely therein, said standards 50 being situated at proper intervals apart. This gives opportunity for free expansion and contraction upon opposite sides of the anchorage during the heating and cooling of the pipes, and as heretofore explained, is one of the principal features of my invention.

The pipes of each shelf should be slightly inclined from the supply end to the discharge end to allow the water of condensation to flow out. The central locking standard 11, being applied to the middle of the pipes, firmly grips the latter, and is itself securely and immovably anchored, so that in this way expansion and contraction of the pipes is permitted in both directions; that is to say, toward and from the anchorage, since the other standards 50 do not lock the pipes thereto, but simply support them in their seats and do not prevent them from freely moving as they expand and contract.

The headers 13 at one end of each rack are connected with an upright manifold 23, the connection being made by means of horizontal pipes 24 united with the headers 13 immediately between their ends (see Fig. 1). Each pipe 24 is provided at a point between the header 13 and the manifold 23 with an expansion joint 25, which is shown in enlarged detail in Fig. 6, and consists of two telescoping tube sections 53 and 54. Each pipe 24 is provided with a valve 26 by means of which the header 13 may be cut off from the manifold. The manifolds 23 belonging to the racks at opposite sides of the shed are connected, as indicated in Fig. 1, at their upper ends by means of a horizontal pipe 27, to which steam from any suitable source is supplied. This connection with a source of steam is preferably made intermediately between the ends of said horizontal pipe 27 and at the center of any suitable shed within which the apparatus may be installed. There is also at the other end of each rack, opposite to the manifold 23, a similar manifold 29. Said manifold 29 is connected with the header 13 at that end of the rack by means of pipes 24 in exactly the same manner as the manifold 23 is connected with its header 13, all as indicated in Fig. 1, each pipe 24 being similarly

furnished with an expansion joint 25 and a controlling valve 26. Brackets 56 of any suitable kind may be employed to brace the manifolds in their places. Said connections for the drying racks might be changed indefinitely, and are shown merely for the purpose of securing a complete apparatus.

In using the apparatus, steam is admitted by means of a valve 26 into the pipes 24, and consequently into the pipes 12 of which the shelves are composed, on which shelves the bricks are placed, said bricks being usually arranged as previously stated on steel pallets 51. When desired any single shelf may be cut out by closing the valve 26 nearest the two manifolds, which valves control the supplying of steam to said shelf. The heat from the pipes is rapidly and effectively transmitted to the bricks and they are quickly dried.

The disturbance from the expansion and contraction in steam drying racks for bricks is exceedingly great, and is therefore a source of trouble because of the loosening of connections, and it is therefore a desideratum to have such pipes rigidly locked and held in place, while at the same time providing means for compensating for all such troubles. In my device the central or neutral locking means accomplishes the purpose by allowing the pipes to expand and contract with the utmost freedom, but holding them rigidly in place at the point where there is no contraction or expansion, and consequently avoiding all possible strains and stresses that may come upon the metal to loosen the connections and cause leakage and trouble.

Many variations in the construction, combination and arrangement of parts may be made without going outside of the legitimate scope of the invention, and I reserve the liberty of varying and reconstructing the details so far as they may be found necessary in securing the best results.

Having thus described my invention, I claim:

1. In a brick drier, the combination with a series of drying shelves and their supports, each of said shelves consisting of a layer of steam drying pipes, of a clamping bar which rigidly grips the pipes at their middle portions whereby expansion and contraction is allowed upon opposite sides of said clamped portion, said clamping bar and supports being provided with registering open bolt-receiving side-slots, and locking bolts adapted to be entered into and removed sidewise from said slots.

2. In a brick drier, the combination with one or more shelves each of which is composed of a layer of steam drying pipes, of means for rigidly holding said pipes at their middle portions whereby expansion and contraction of the pipes is allowed upon

opposite sides of the holding means, and means for loosely supporting the movable portions of said pipes.

3. In a brick drier, the combination with
5 a series of drying shelves each of which is composed of a layer of steam drying pipes, of a support for said pipes, said support being provided with a series of open bolt-receiving side-slots, a clamping bar having a
10 corresponding series of open side-slots adapted to register with those in the pipe

support, and a series of locking bolts adapted to pass sidewise into said slots, whereby said pipes are rigidly and collectively held by said bar on said support.

Signed at New York city, this 19th day
of March, 1907. 15

EDWARD H. CALLAWAY.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."