

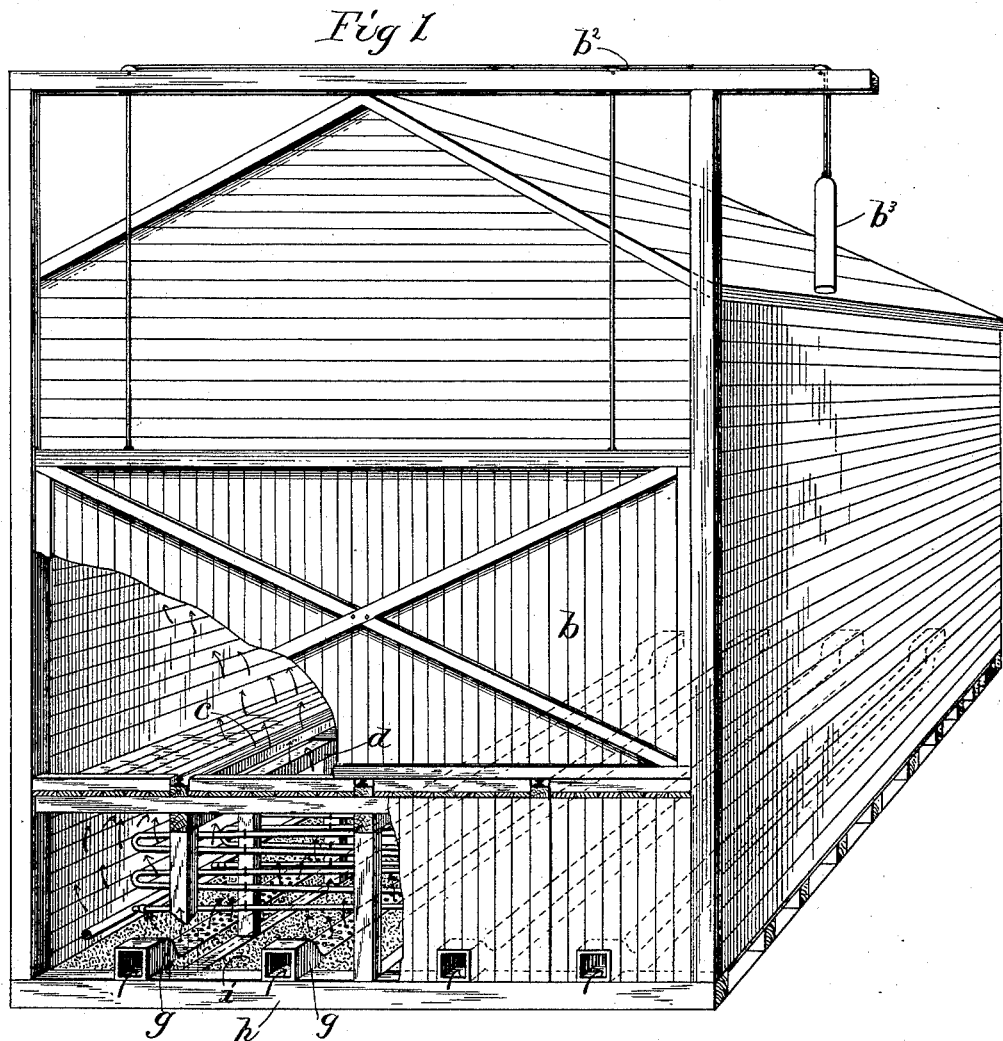
(No Model.)

3 Sheets—Sheet 1.

LA FAYETTE MOORE.
DRYING KILN.

No. 524,598.

Patented Aug. 14, 1894.



WITNESSES:

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(No Model.)

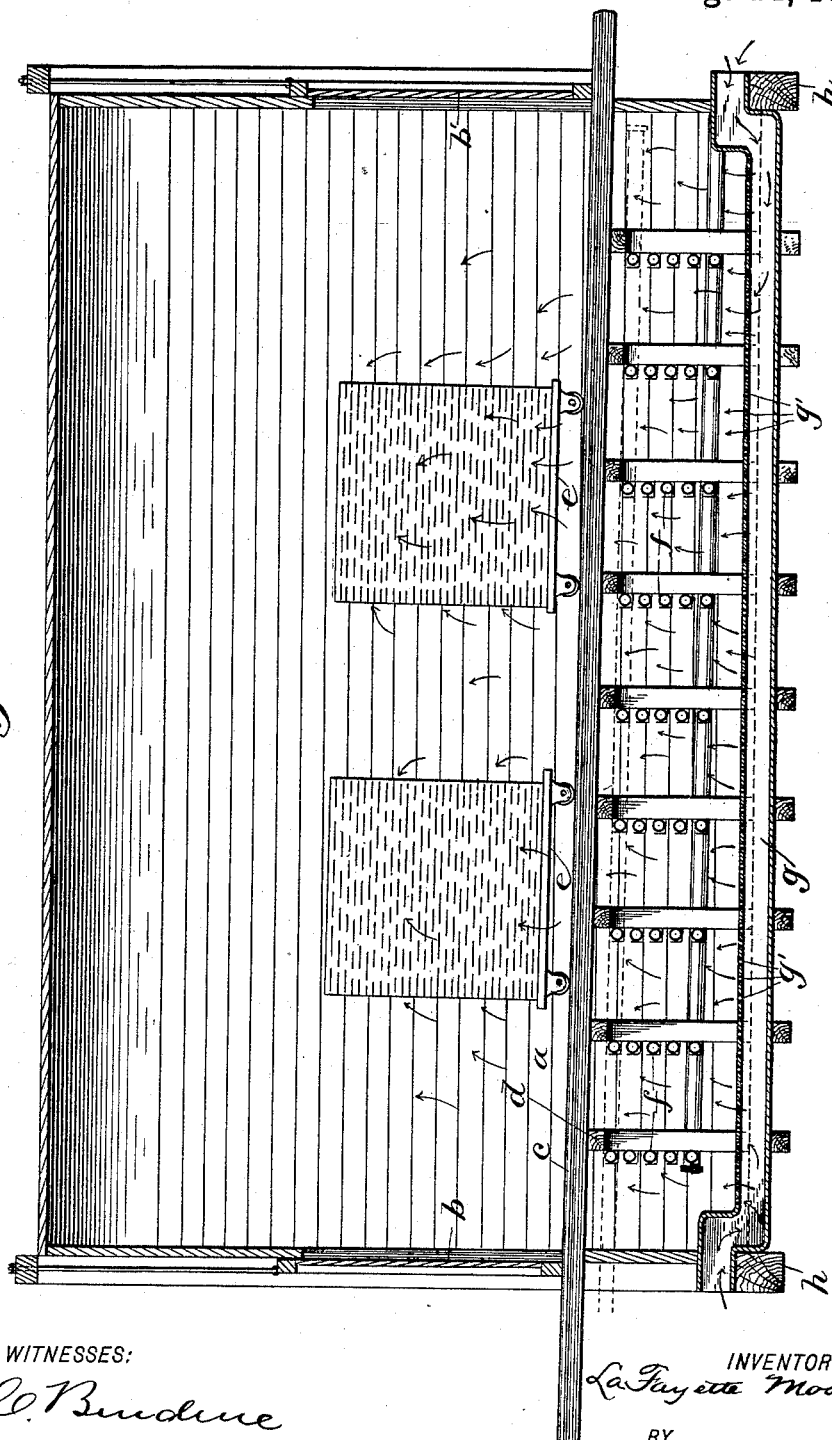
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LA FAYETTE MOORE.
DRYING KILN.

No. 524,598.

Patented Aug. 14, 1894.

Fig. 2.



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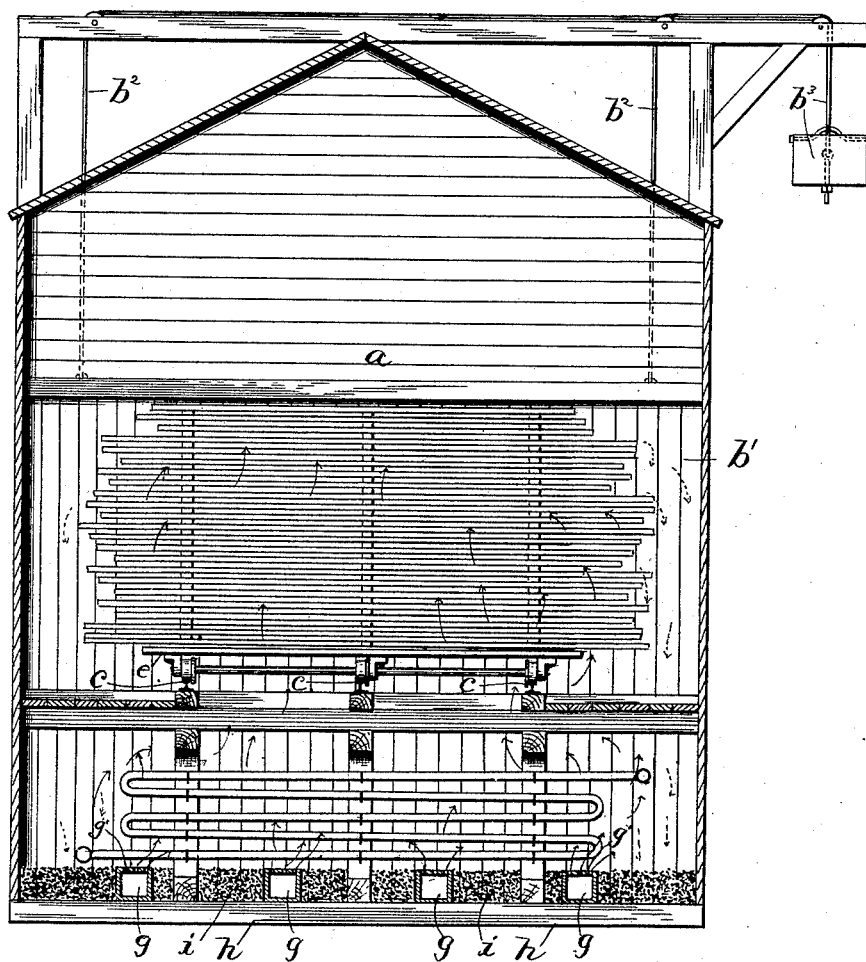
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Fig. 3.



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LA FAYETTE MOORE, OF CORDELE, GEORGIA.

DRYING-KILN.

SPECIFICATION forming part of Letters Patent No. 524,598, dated August 14, 1894.

Application filed April 21, 1893. Serial No. 471,294. (No model.)

To all whom it may concern:

Be it known that I, LA FAYETTE MOORE, a citizen of the United States, residing at Cordele, in the county of Dooley and State of Georgia, have invented certain new and useful Improvements in Drying-Kilns; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to those drying kilns which employ steam or other heating pipes in connection with ducts for receiving outside air to maintain a circulation through the kiln.

It has been found in practice that the introduction of a blast or current of air continuously through the kiln whether by artificial or other means, dries the lumber too rapidly and "checks" and otherwise damages its quality. It also renders the whole interior of the structure so dry and combustible that frequent losses occur from fire. A still further disadvantage is in the loss of heat which is carried off by the circulation of air through the kiln, necessitating the employment of larger heating pipes, more fuel and entailing much expense.

The object of my invention is to overcome these and various other existing defects in the kilns now known and used, and to produce a kiln which is cheaper, less liable to get out of order, requires no machinery to effect its successful operation or special attendants to keep it in order.

A further object of my invention is to produce a superior quality of lumber, which will be softer and free from "checks."

To accomplish this purpose I employ the peculiar structure fully described hereinafter and pointed out in the claims.

In the accompanying drawings: Figure 1 represents a perspective view of a kiln built according to my invention, a portion of the front being cut away to disclose the interior; Fig. 2 a longitudinal section; Fig. 3 a transverse section.

The reference letter *a* represents an inclosure practically air tight and free from chimneys, vents or escape openings. *b, b'* are the

usual sliding doors arranged to slide up and down, assisted by the ropes *b²* and counterbalance *b³*. Inclined tracks *c* extend through the inclosure from the front or receiving end which is higher, to its discharging end which is lower, and are supported on the usual trestle work *d*. These tracks are adapted to receive trucks *e* on which the lumber to be treated is piled. Beneath the tracks and supported on the sides of the posts of the trestle work, are the steam coils *f*, which are of the usual construction. Inasmuch as the trestle, the track and the arrangement of the heating coils are all old and well-known to the art, no further description of this construction is considered necessary. Embedded in the ground or sand under the coils is a series of air ducts *g* which extend from end to end of the inclosure. The opposite ends of these ducts project upwardly and thence outwardly where they rest upon sills *h*, their ends being left open to receive outside air. The top of each duct is provided with perforations *g'* by means of which the inflowing outside air is distributed as it passes up into the kiln. These ducts are embedded in sand or common earth a distance that will allow their tops to lie flush with the earth *i* or sand, as will be more readily seen in Figs. 1 and 3 of the drawings. The ends of the ducts it will be seen, lie beneath the platforms on sills *h*, so as not to be interfered with during the loading and unloading operations.

The bottom of the kiln is entirely floorless, and it consists simply of the earth or sand *i*, thus saving the expense and danger incident to the use of a wood floor beneath the heaters. This floorless bottom enables the moisture to fall directly to the earth or sand and become absorbed or carried off.

The preferred construction of my device having been set forth, I will now proceed to describe its operation.

The inclosure is first filled with trucks of lumber to be dried, and the doors are closed. When this is done, the absence of circulating flues or openings in the upper portion of the inclosure will allow the air to enter only through the opposite ends or mouths of the air ducts. The heat from the coils will now rapidly raise the temperature of the atmosphere within the kiln because there is no es-

cape for it excepting by way of the air flues or ducts below. The lumber now begins to sweat and fill the air within with moisture. The incoming outside air meets this heated and moist air and produces condensation, and this condensed moisture descends upon and is absorbed by the sand or earth in the bottom of the kiln. The amount of moisture liberated from the lumber so dampens the whole interior of the kiln that combustion becomes impossible. This feature is of great importance in preventing the conflagrations to which kilns are subjected. After the lumber has been left to the effects of the heating or sweating operation for forty-eight hours or a suitable length of time, it can be removed from the kiln and as soon as exposed to the open air will become quickly dry, after which it will be found to be dried with the greatest uniformity throughout, and entirely free from "checks," case-hardening or any other of the bad influences exerted upon it by drying through the old medium of continuous currents of air.

By having the upper portion of the kiln free from flues or escape orifices, the atmosphere is heated in a much shorter time and is kept hot much easier, thereby saving fuel and expense in maintenance, for it will be apparent that all or nearly all of the heat will be confined and fully utilized instead of being allowed to escape into the open air and become dissipated as in those kilns in which a constant current of air flows in at the bottom and out at the top. In addition to these advantages, the kiln is free from valves, dampers or other features which get out of order frequently and require constant repair and attention. It can be cheaply built, saves a great amount of fuel, time, labor and expense of maintenance, and effects the highest and best results.

Heretofore it has been proposed to practically seal the kiln for the purpose of sweating, but such a mode is attended with danger

of overheating, while in my invention any superheated air is allowed to escape at the bottom, thereby overcoming all danger from such source.

Having thus described my invention, what I claim is—

1. A lumber drying kiln consisting of an inclosure having permanently closed side walls and roof, in combination with heaters located within the inclosure, and air-ducts located below the heaters, and having permanently open ends for the reception of outside air, in the manner and for the purpose set forth.

2. A lumber drying kiln comprising the combination of an inclosure having permanently closed side-walls and top, whereby the heat and vapor from within are prevented from escaping at points above the base of the inclosure, heating devices located within the inclosure, air-ducts located at the lower portion thereof and below the heating appliances, whereby ingress of outside air is permitted only at the base of the inclosure during the drying process, as and for the purpose set forth.

3. The combination in a lumber drying kiln, of a floorless inclosure normally closed at the top and sides, heating devices located within the inclosure, air-ducts extending across the bottom of the inclosure and embedded in the ground which forms the bottom of the inclosure, said air-ducts being provided with perforations throughout their upper portion, in the manner and for the purpose set forth.

4. A floorless lumber drying kiln having closed side-walls and top and provided with air ingress openings at the base only, as and for the purpose set forth.

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

LA FAYETTE MOORE.

Witnesses:

R. G. DU BOIS,
J. H. SIGGERS.