

No. 837,866.

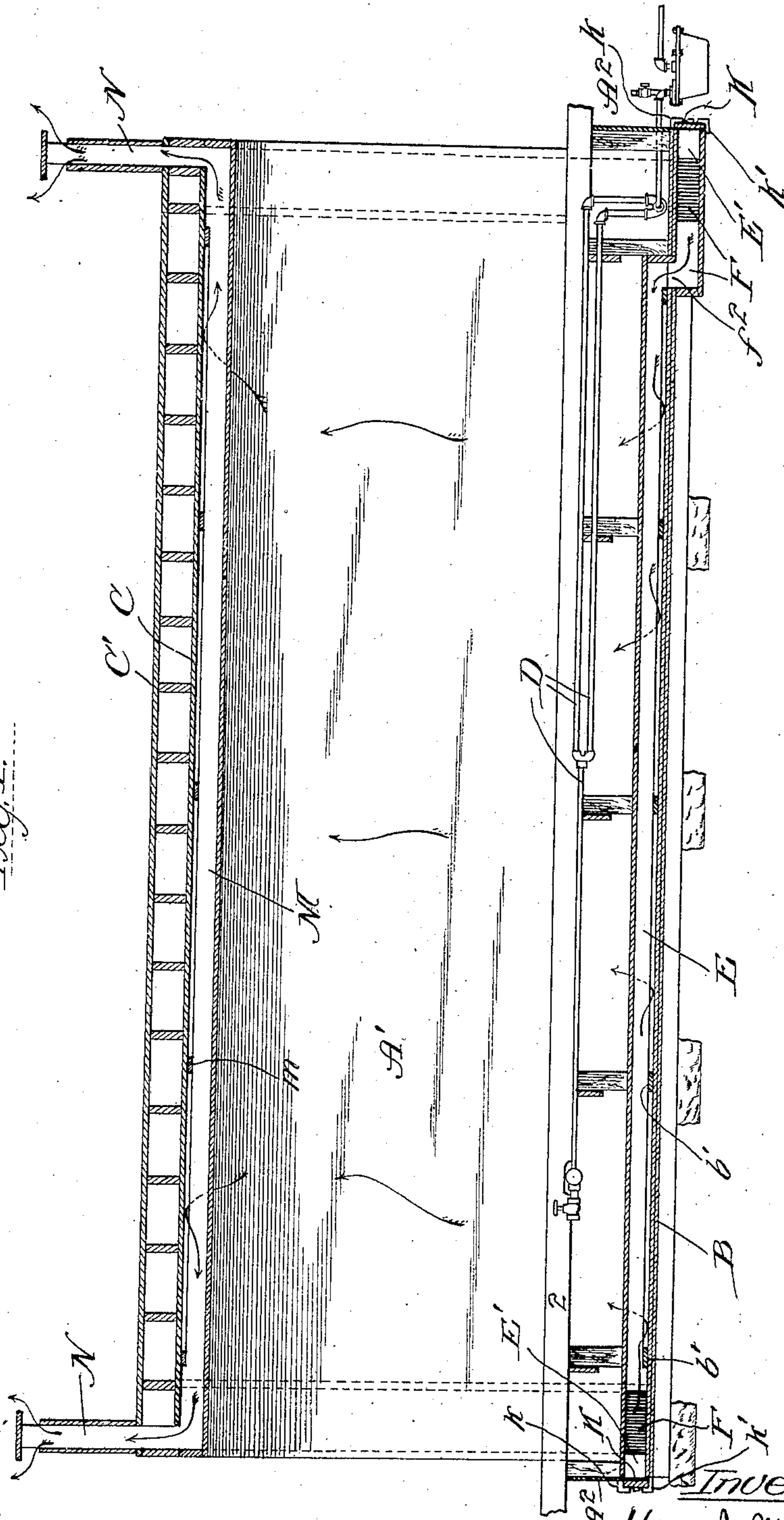
PATENTED DEC. 4, 1906.

H. J. MORTON.
DRYING KILN FOR LUMBER.

APPLICATION FILED MAR. 3, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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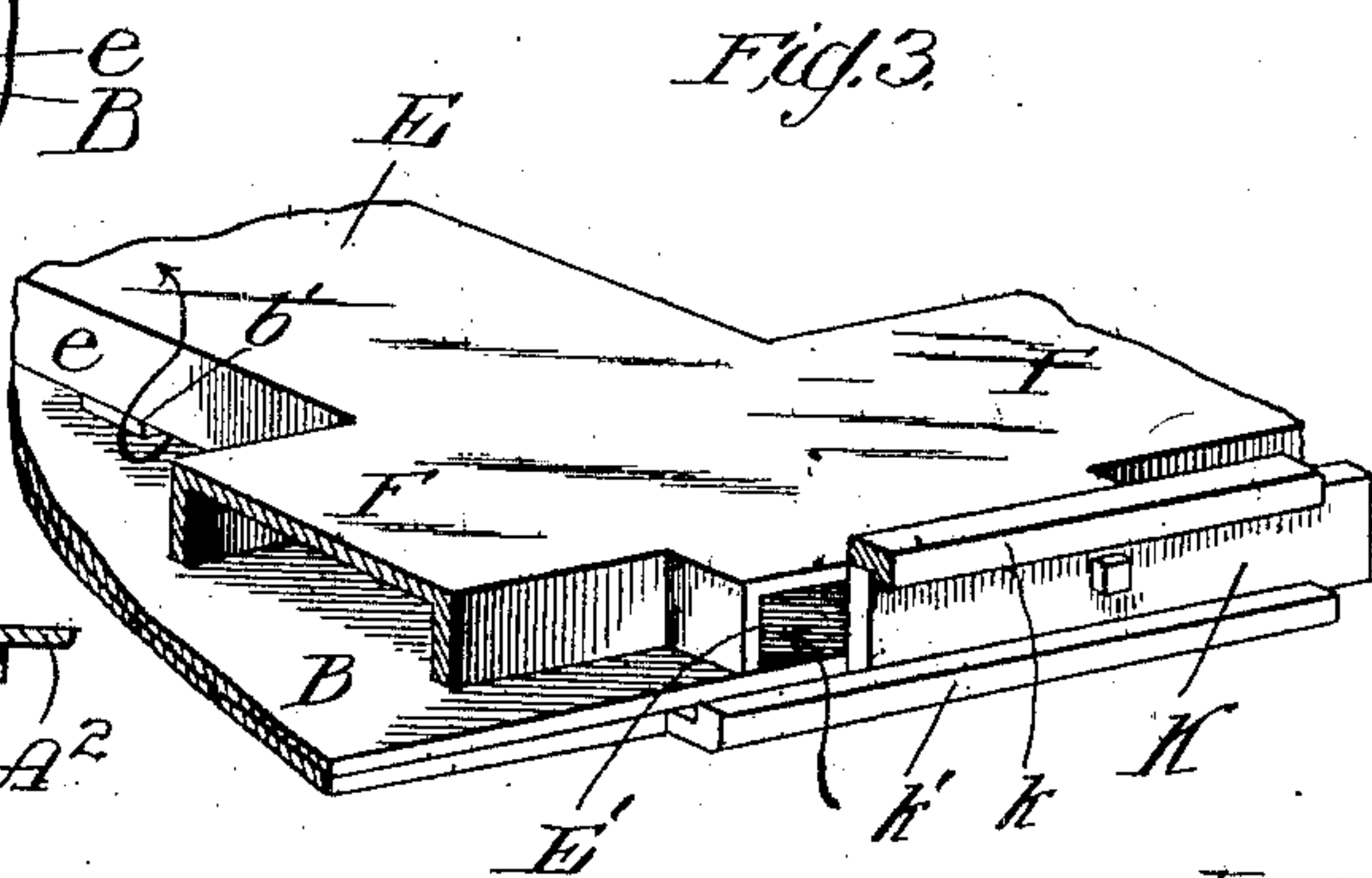
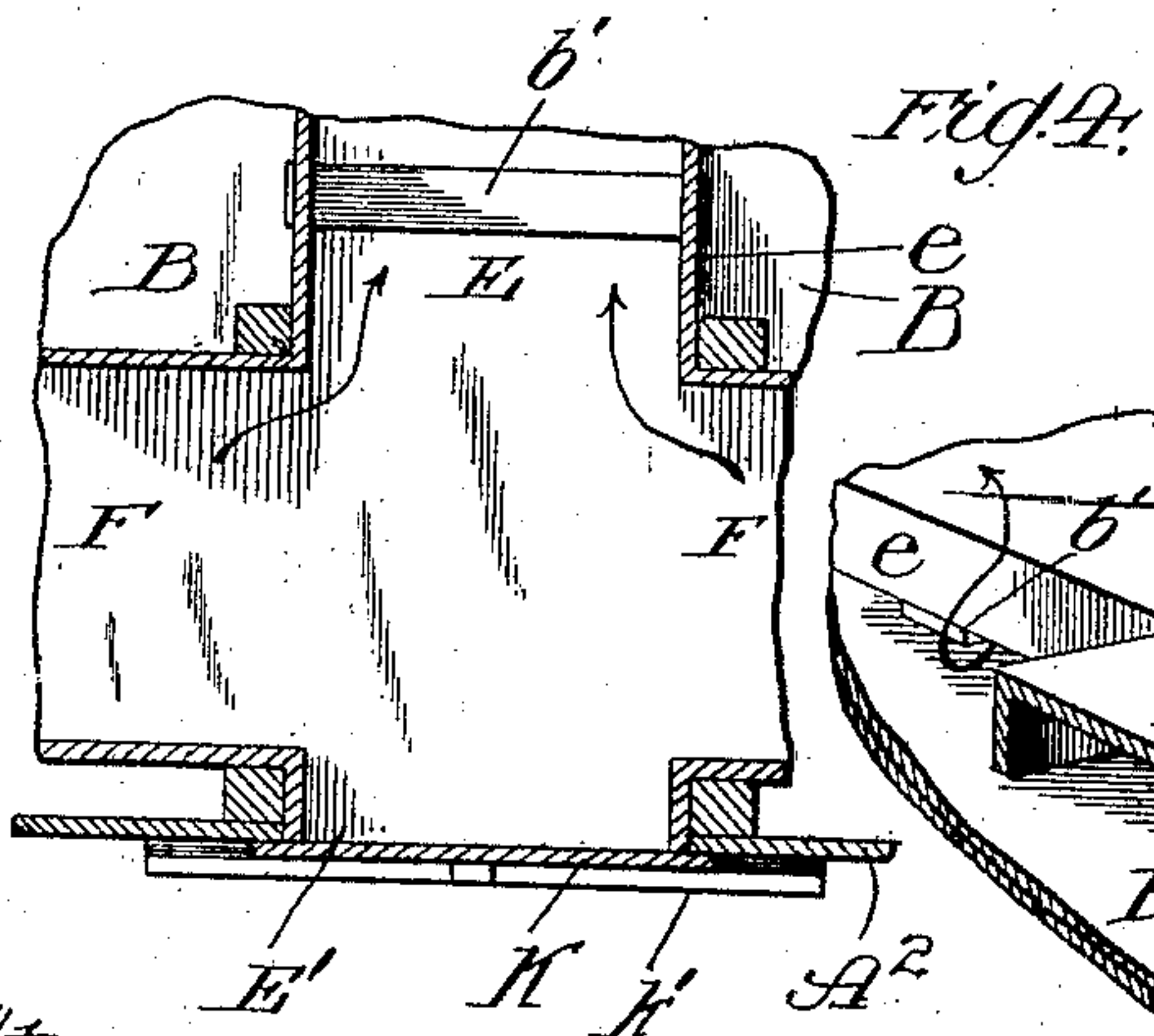
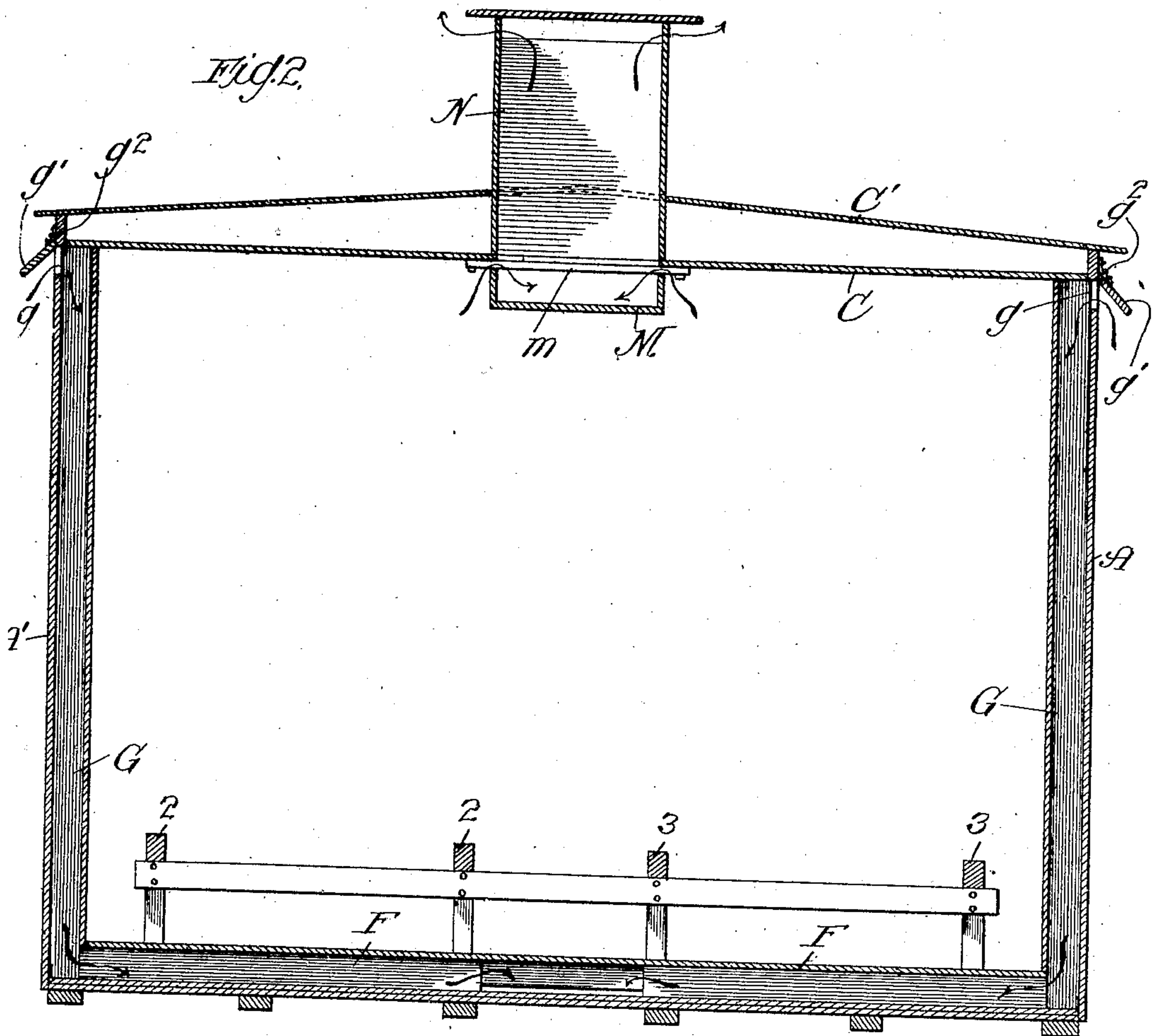
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

HORACE J. MORTON, OF CHICAGO, ILLINOIS.

DRYING-KILN FOR LUMBER.

No. 837,866.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed March 3, 1905. Serial No. 248,264.

To all whom it may concern:

Be it known that I, HORACE J. MORTON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Drying-Kilns for Lumber, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The present invention relates more particularly to that class of lumber-drying kilns in which provision is made for the admission of the loaded lumber-trucks at one end of the kiln and for their discharge after the drying operation at the opposite end of the kiln.

The object of the invention is to provide improved means for admitting and discharging the air-supply to and from the kiln; and the invention consists in the features of novelty hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the claims at the end of this specification.

Figure 1 is a view in central vertical section through a drying-kiln embodying my invention. Fig. 2 is a view in vertical cross-section on a line adjacent the discharge end of the kiln. Fig. 3 is a detail perspective view of the portion of the floor of the kiln, showing a portion of the air-admission conduit at the discharge end of the kiln. Fig. 4 is a detail view, in horizontal section, through the parts shown in Fig. 3.

A and A' designate the side walls of the kiln. B denotes the floor of the kiln, and C designates the ceiling that extends beneath the roof C'. From end to end of the kiln and raised a sufficient distance above its floor B to permit installation of steam-heating pipes D extend the two sets of stringers 2 and 3, upon which will be laid the rails whereon the lumber-carrying trucks will travel through the kiln. It will be understood, of course, that the ends of the kiln will be furnished with doors or other closures of any usual or suitable construction. Beneath the line of the rail-carrying stringers the ends of the kiln will be suitably closed, as by the end walls A².

Along and above the kiln-floor B extends the air-admission conduit E, this conduit E being preferably a three-sided or U-shaped box, the side walls *e* of which are raised slightly above the floor B, as by the interposition of the cross-strips *b'*. Fresh air is ad-

mitted to the conduit E preferably by means of transverse conduits F at each end of the conduit E, the open ends of which conduits F are shown as connecting with channels or conduits G, formed in the side walls of the kiln. The cross-conduit F at one end (the discharge end in the form shown) of the main conduit E is shown as resting directly upon the floor B and with its sections joining the sides of the conduit E, (see Figs. 1, 2, 3, and 4;) but for convenience in arranging the heating system the conduit F at the opposite end of the kiln (see Fig. 2) is located beneath the floor B and joins that part of the conduit E beneath an opening *f*² formed in the floor. The upper ends of the vertical channels G communicate with the atmosphere through suitable ports or openings *g*, and above these ports or openings *g* shields or doors *g'* are preferably extended. The transverse conduit F is shown as delivering air to the central conduit E from both sides of the kiln; but obviously under certain conditions the admission of air may occur from one side only. As shown, the shields or doors *g'* are hinged, as at *g*², to the eaves of the kiln immediately above the admission-ports *g*, so that either one or both of the shields or doors may be left open or closed, as desired.

In drying certain kinds of lumber—as, for example, lumber that has been partially air-dried—it is desirable to conduct the drying operation with a very slow circulation of air within the kiln. On the other hand, when lumber is delivered to the kiln fresh from the saw a much more rapid circulation of air is desirable within the kiln. In order to effect such more rapid circulation, provision is made for the more direct admission to the conduit E of air from the ends of the kiln. Thus by reference more particularly to Figs. 1, 3, and 4 of the drawings it will be seen that the ends of the air-admission conduit E are formed open, as at E', these open ends of the conduit extending through the end walls A² of the kiln. Suitable doors K are provided for closing the open ends E' of the conduit E, these doors being preferably arranged to slide between upper and lower guides *k* and *k'*.

Lengthwise of the drying-kiln and immediately beneath the ceiling thereof extends the main air-discharge conduit M, that communicates with the outer atmosphere by one or more vertical channels or conduits N at the end or ends of the kiln. Preferably the dis-

charge-conduit M is a three-sided or U-shaped box that is secured to the ceiling C by cross-bars or cleats *m*, these cross-bars or cleats holding the side walls of the conduit M a sufficient distance from the ceiling C to permit the free admission of air into the conduit M. The ceiling C is cut, as shown, to permit the ends of the conduit M to communicate with the discharge-conduits N, that extend through and above the roof of the kiln.

From the foregoing description it will be seen that if the kiln is being used for the drying of lumber not particularly dry or green—such, for example, as has been partially air-dried—fresh air will be admitted through the openings *g* at the top of the side conduits G and, passing through these conduits G and through the horizontal conduits F, will enter the main admission-conduit E and will emerge beneath the side walls *e* of this conduit into the kiln. Inasmuch as the fresh air is discharged from the conduit E along the bottom thereof, it will be caused to enter along the floor of the kiln, and hence below the heating-pipes, thus being forced to circulate more effectively through said pipes than would be the case if the air were discharged from conduit E at its top. The air rising to the top of the kiln will pass over the edges of the conduit M and by this conduit will pass to the end discharge-conduits N, whence it will escape to the atmosphere.

When very damp lumber or lumber fresh from the saw is to be dried and a more rapid circulation of air within the kiln is desired, the doors *g'* at the top of one or both of the conduits G will be closed and the doors K at the ends of the main admission-conduit E will be opened, thereby admitting air more directly to the conduit E and in regulated quantity.

It is manifest that the precise details of the construction above set out may be varied without departing from the spirit of the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A drying-kiln having a fresh-air conduit extending lengthwise thereof and located immediately above its floor, said conduit comprising a three-sided trough having its side walls raised slightly above the floor of the kiln.

2. A drying-kiln having a fresh-air conduit extending lengthwise thereof and above its

floor, the discharge-passage from said conduit being located at the bottoms of the sides of said conduit, a transverse conduit located above the line of the floor and communicating with said first-mentioned conduit, and a vertically-disposed conduit arranged at the side of the kiln and communicating with the atmosphere and with said transverse conduit.

3. A drying-kiln having a fresh-air conduit extending lengthwise thereof above its floor-line, a transverse conduit at one end of the kiln above its floor-line, and a second transverse conduit located at the opposite end of the kiln and below the floor-line thereof, and means whereby fresh air is admitted to said fresh-air conduits.

4. A drying-kiln comprising a main air-discharge conduit secured to the ceiling of the kiln, the admission to said conduit being at the sides thereof, and immediately adjacent the ceiling, and one or more discharge-conduits at the end of said main discharge-conduit and leading through the roof of the kiln.

5. A drying-kiln having a main fresh-air conduit extending lengthwise thereof, the end of said main fresh-air conduit being provided with a door-controlled opening for the direct admission of air to the conduit, in combination with a conduit extending laterally therefrom, and a conduit extending vertically from the outer end of said lateral conduit.

6. A drying-kiln having a main fresh-air conduit extending lengthwise thereof, said conduit having side discharge-openings, said fresh-air conduit being provided with one or more lateral air-admission conduits leading upward at the side or sides of the room and being provided also at its end with an opening for the direct admission of air to the fresh-air conduit.

7. A lumber-drying kiln having a main air-discharge conduit held in position immediately beneath the ceiling thereof and extending lengthwise of the kiln from end to end, said air-discharge conduit consisting of a three-sided trough or channel, the side walls of which are held at a slight distance from the ceiling of the kiln to allow the air to enter the conduit, and a suitable conduit or discharge passage-way leading from said main discharge-conduit to the atmosphere.

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Witnesses:

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