(No Model.)

2 Sheets—Sheet 1.

B. F. EWING.

DRYING APPARATUS.

No. 575,468. Patented Jan. 19, 1897.

Fig. 1.

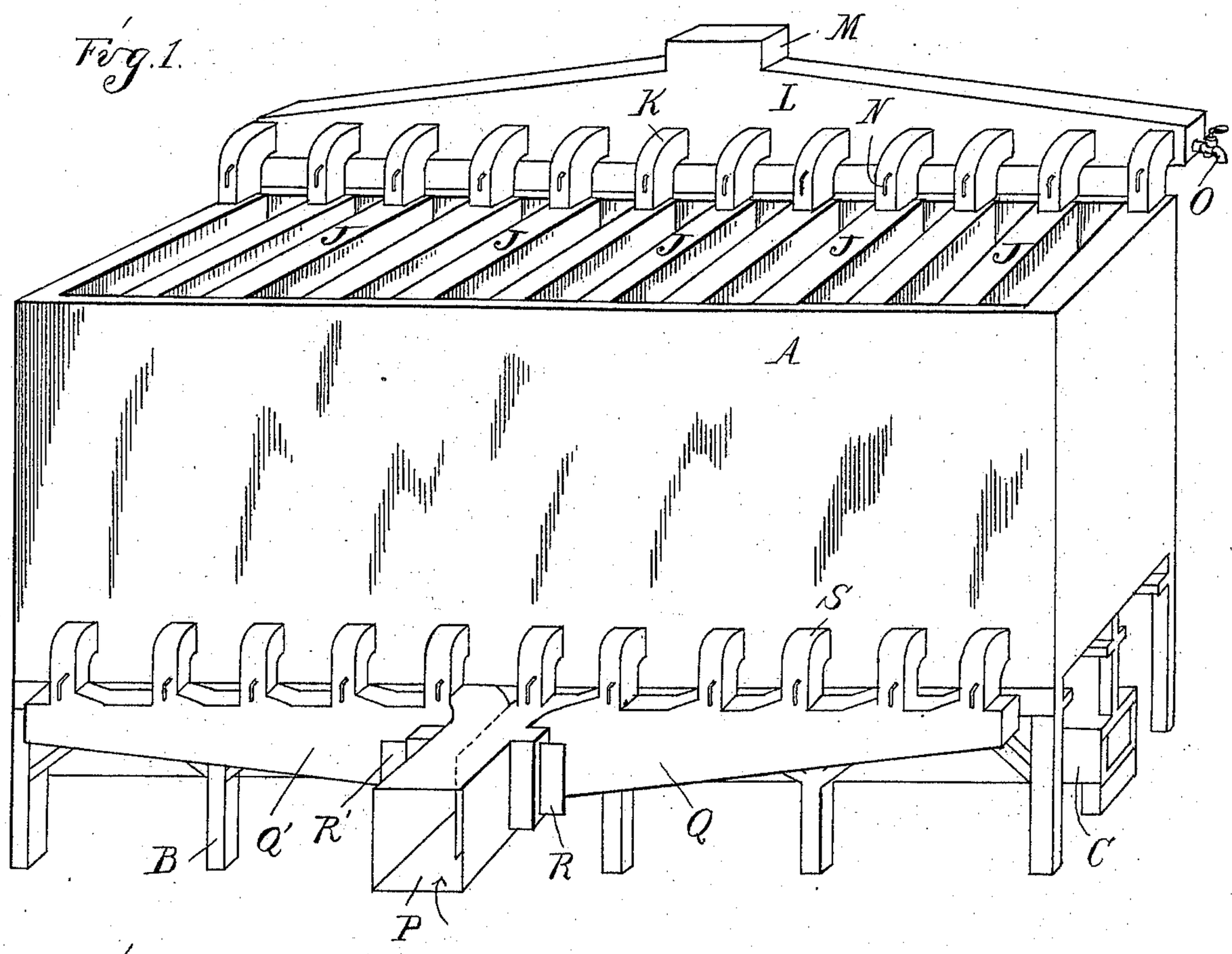


Fig. 2.

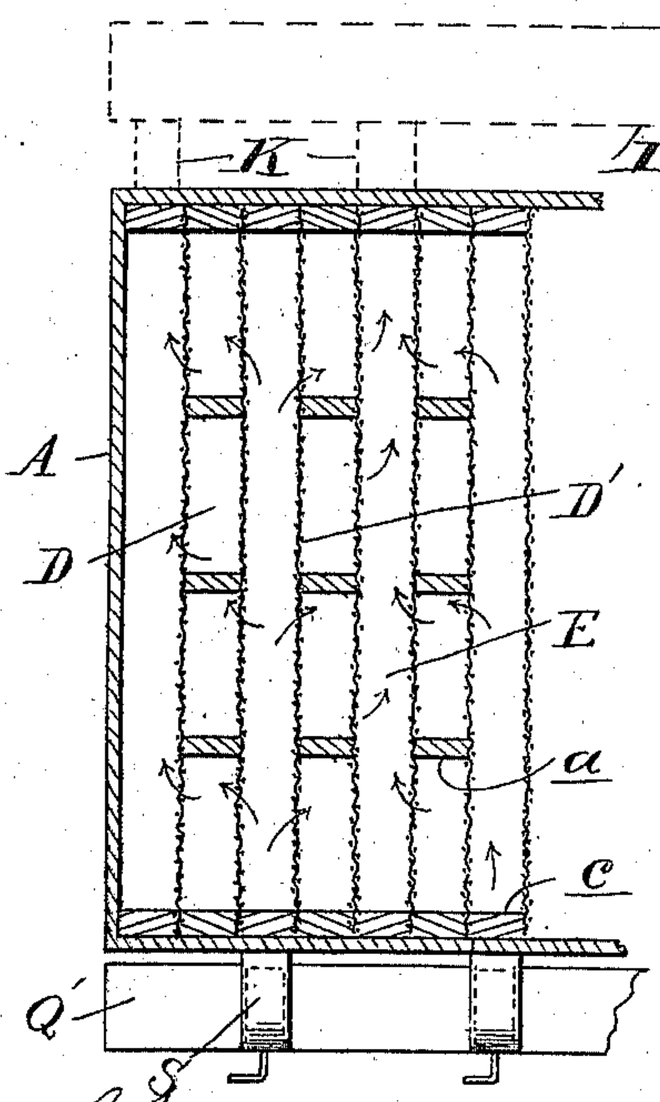
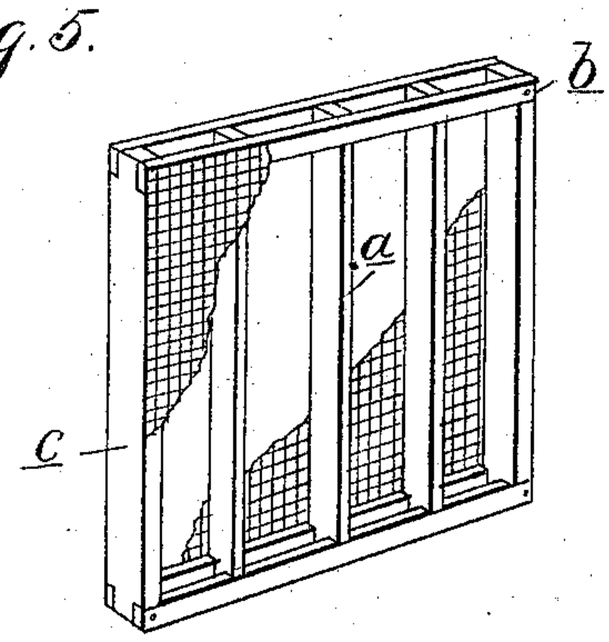


Fig. 5.



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(No Model.) 2 Sheets—Sheet 2.

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DRYING APPARATUS.

No. 575,468. Patented Jan. 19, 1897.

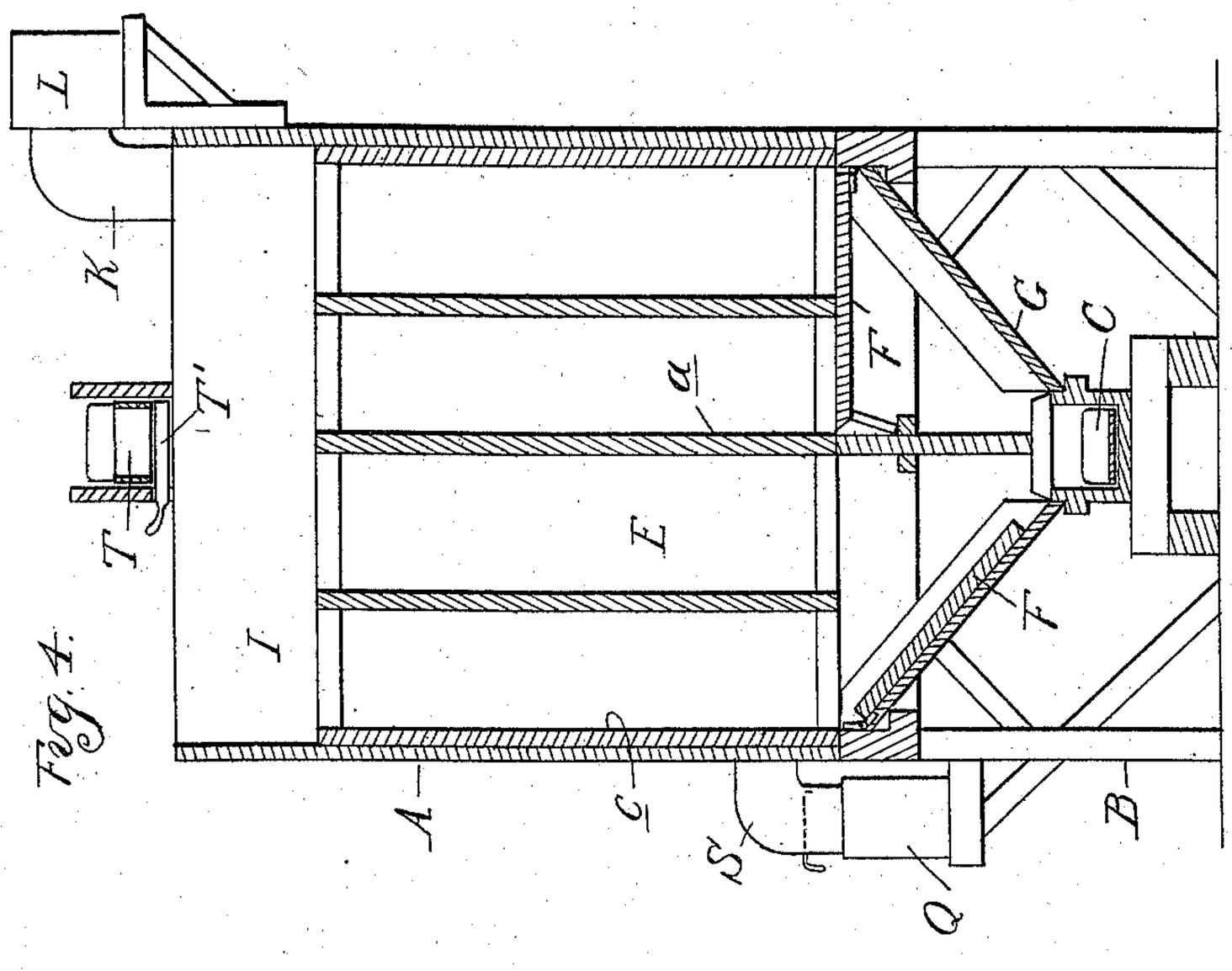

Fig. 4.

Fig. 6.

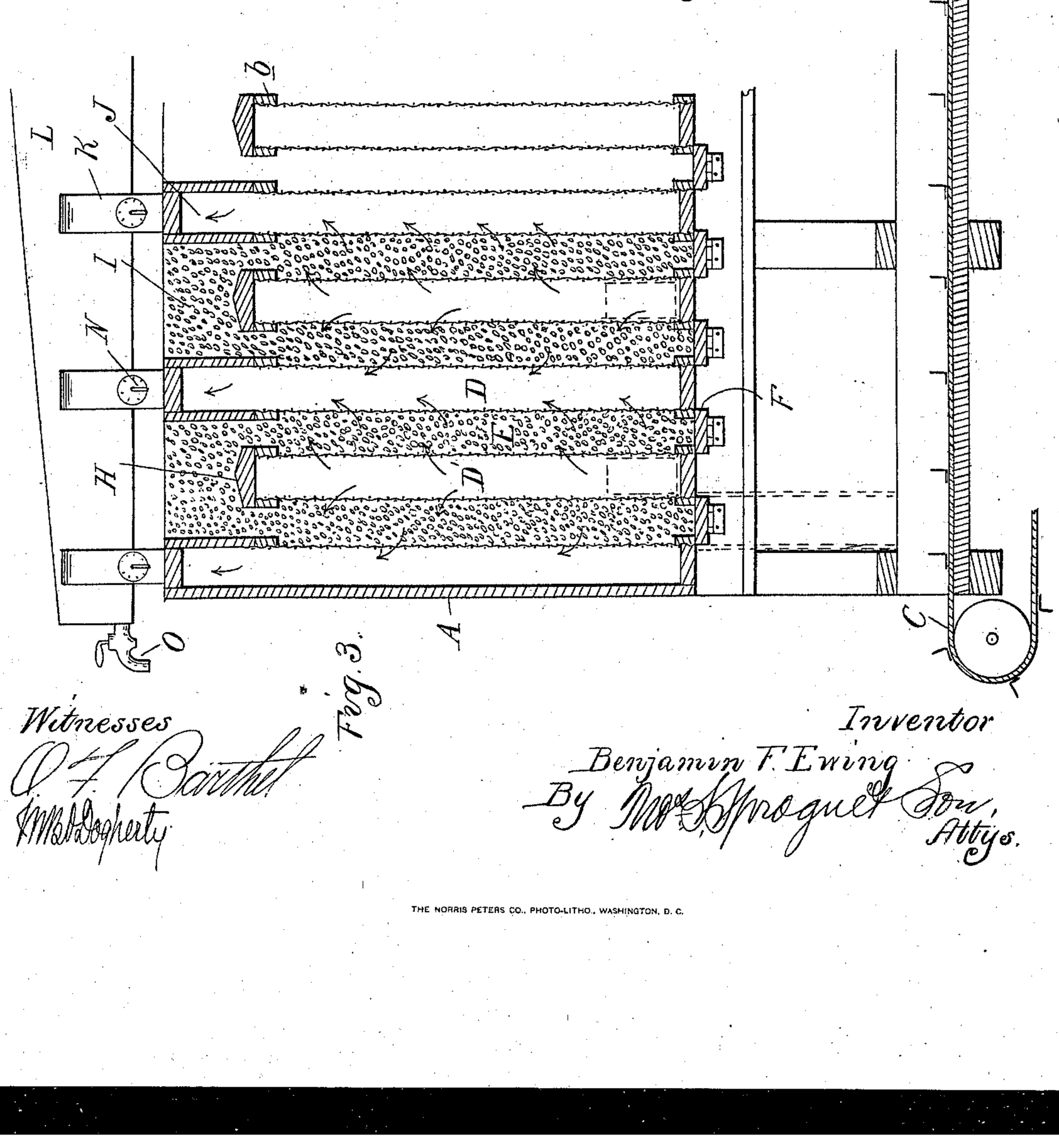

Fig. 3.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. EWING, OF DETROIT, MICHIGAN.

DRYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 575,468, dated January 19, 1897.

Application filed January 14, 1896. Serial No. 575,509. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. EWING, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Drying Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to the construction of a drying apparatus designed especially for grain and similar material; and it consists in the construction of a drying-chamber divided by perforated walls into storage-bins and air-flues alternately, with inlets into the bottom of every other one of the flues and exits from the intermediate flues, whereby the air is caused to pass through the storage-bins in passing through the machine.

The invention further consists in the construction, arrangement, and combination of the various parts, all as more fully hereinafter described.

In the drawings, Figure 1 is a perspective view of my improved device. Fig. 2 is a central horizontal section. Fig. 3 is a vertical longitudinal section. Fig. 4 is a vertical cross-section showing one dump-door in its closed and one in its open position. Fig. 5 is a detached perspective view of a double screen-frame with the screen partly broken away. Fig. 6 is a longitudinal section through the upper conveyer-trough.

A is a suitable casing within which are formed the storage-bins and air-flues. This casing is preferably supported above the floor by the standards B, sufficiently high to allow of a conveyer C for carrying off material discharged from the drier.

The divisions in the casing I preferably form by means of double screen-frames (shown in Fig. 5) consisting of a series of posts *a*, connected by the cross-bars *b*, fitted flush in gains, and covered on opposite sides by wire-netting or similar reticulated material. These frames are fitted between the vertical guide-strips *c*, Fig. 2, on the sides of the casing A, and when thus fitted in position they divide the whole chamber into a series of alternate air-flues D D′ and storage-bins E, the flues being between the frames and the bins the space within the frames. The bottom of each bin is provided with a door or doors, preferably two doors F, as shown in Fig. 4, hinged at opposite ends and opening downward in the middle. Suitable chutes G may be arranged under the bins E to direct the material into the conveyer C. The upper ends of the bins are open, but the tops of the flues D′ are closed by caps H.

I are hoppers formed between the transverse ducts J, which are in the nature of tops or caps or extensions of the flues D.

K are exit-pipes from one end of the ducts J, leading, preferably, into a common trunk L, from which an exit-pipe M may carry off the vapor-laden air to any desired point.

N are valves controlling the exit-pipes K. O is a drain faucet or pipe for the trunk L. P is the air inlet or supply pipe, having connection into the trunks Q Q′, communication with the trunks being controlled by means of valves R R′. From the trunk are valve-controlled pipes S, leading into the bottom of the air-flues D′.

The parts being thus constructed, the device is adapted for use as follows: The grain or other material to be dried is fed into the conveyer T, from which it may be dropped into any of the hoppers I by opening the slides T′, Figs. 4 and 6. The material falling into the hoppers will pass into the bins E. Thus any number or all of these bins may be filled. When filled, the air being supplied from pipe P, the valves R being open, will pass into the air-flues D′ at the bottom laterally through the material in the bins E into the flues D, finding exit at the top thereof through pipes K and trunk L. Thus it will be seen that the material is stored in a series of thin bins with perforated sides, and the air is passed therethrough laterally, preferably coming in at the bottom and being discharged at the top, carrying the vapors with it, and in practice it has been found that grain or other material in very large quantities can be quickly dried with this apparatus.

It will be seen also that part of the apparatus may be emptied or filled while the rest is being used for drying purposes, thus a continuous operation being carried on, which greatly facilitates the speed. As the grain is dried it settles somewhat, and that in the hopper I will pass into the bin E.

What I claim as my invention is—

1. In a grain-drier, the combination with a casing of a series of like open-ended frames having perforated side walls, and arranged across the casing, means for securing the frames in the casing and spacing the same substantially equidistant apart, closing-caps for alternate frames, inverted-trough-shaped ducts fitted on the upper ends of the remaining frames, means for supplying air to the alternate frames, air-outlets from said ducts, and outlet-doors for the material at the base of the casing between the frames, substantially as described.

2. An imperforate casing open at top and bottom, a series of frames arranged parallel having perforated sides and extending across the casing from side to side forming an alternate series of air-chambers and grain-chambers, inverted-trough-shaped caps for the alternate or exit air-chambers extending above the top of the intermediate or inlet air-chambers, caps for such intermediate air-chambers, outlet doors or valves for the bottoms of the grain-chambers, valved air-inlets to the inlet-chambers and exits from the exit-chambers.

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

BENJAMIN F. EWING.

Witnesses:
O. F. BARTHEL,
M. B. O'DOGHERTY.