

THOMAS W. EATON.

Improvement in Grain-Driers.

No. 115,833.

Patented June 13, 1871.

fig: 1

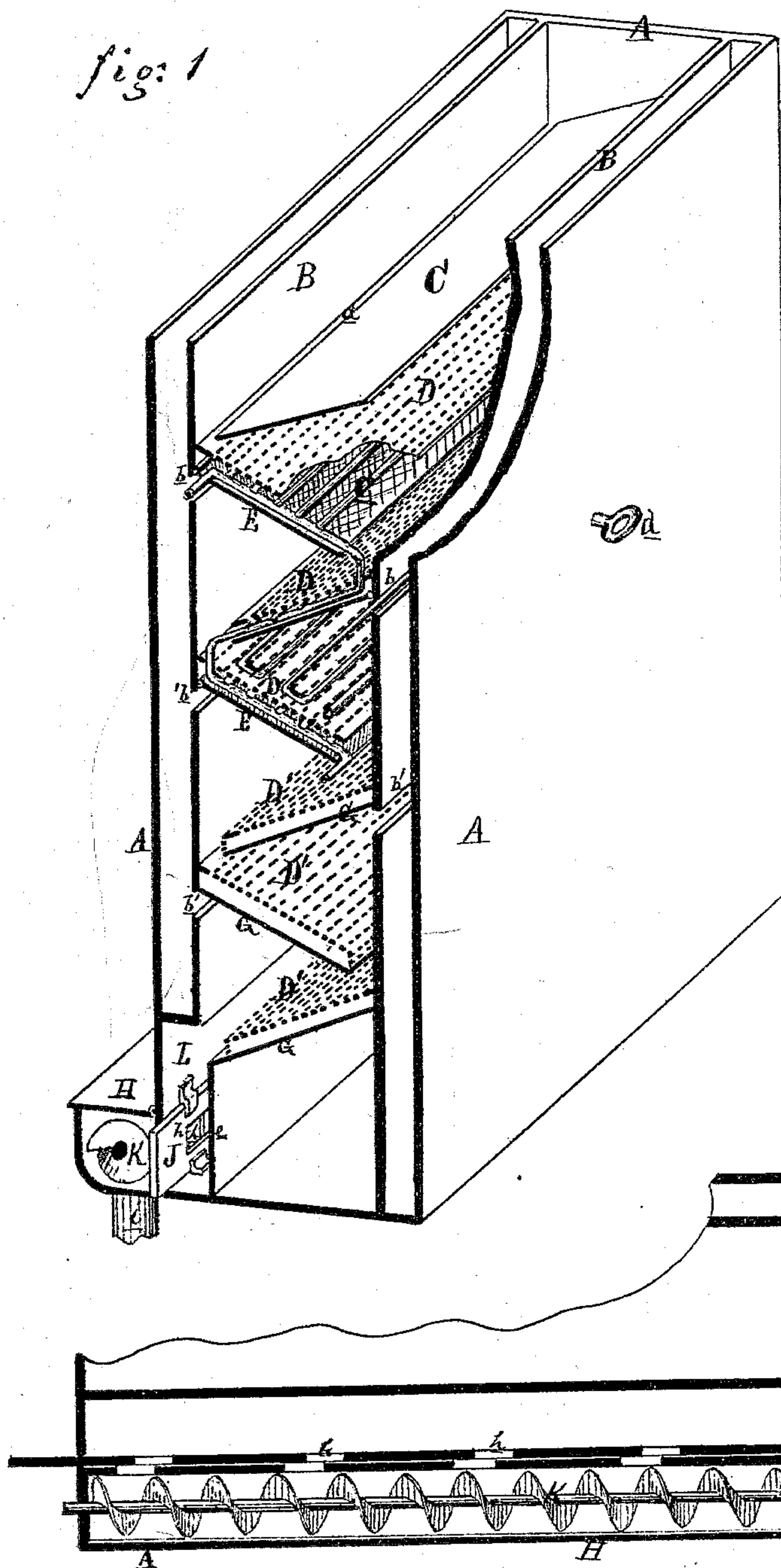


fig: 2

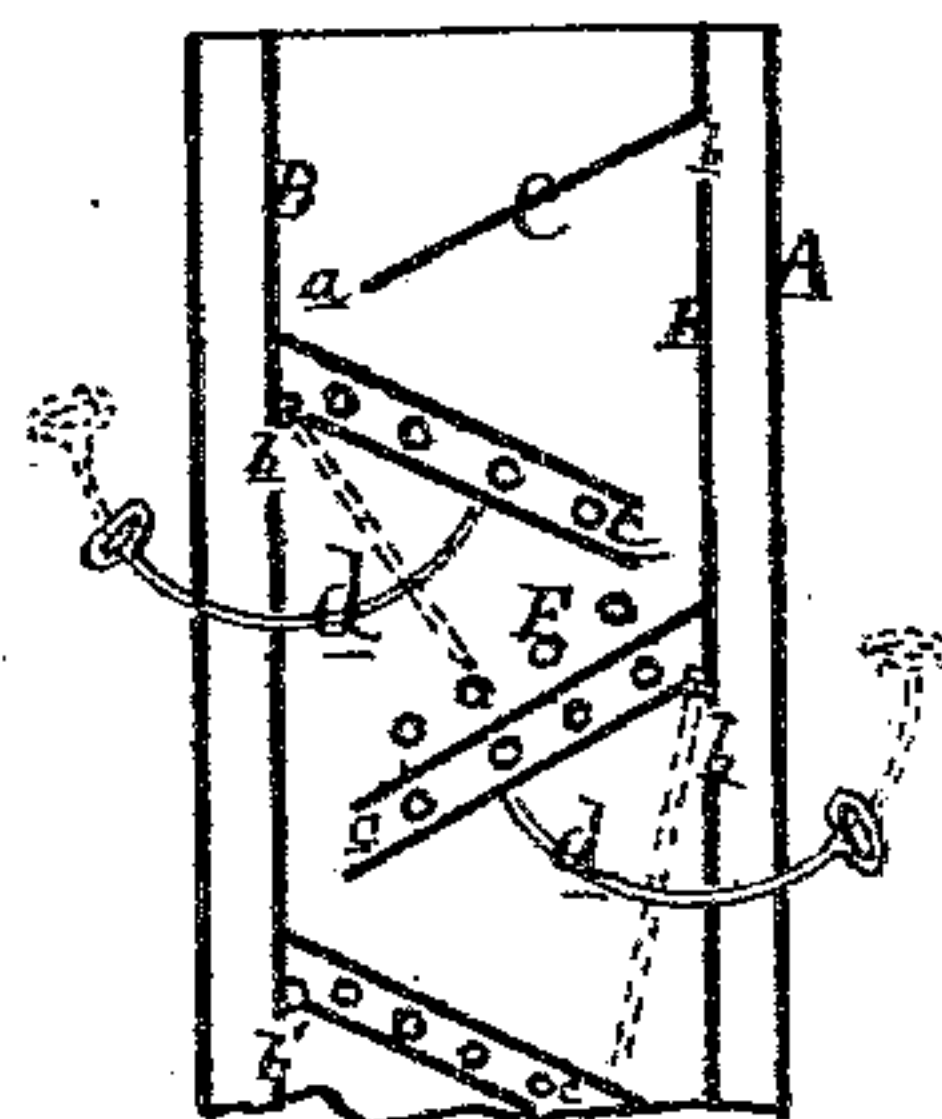
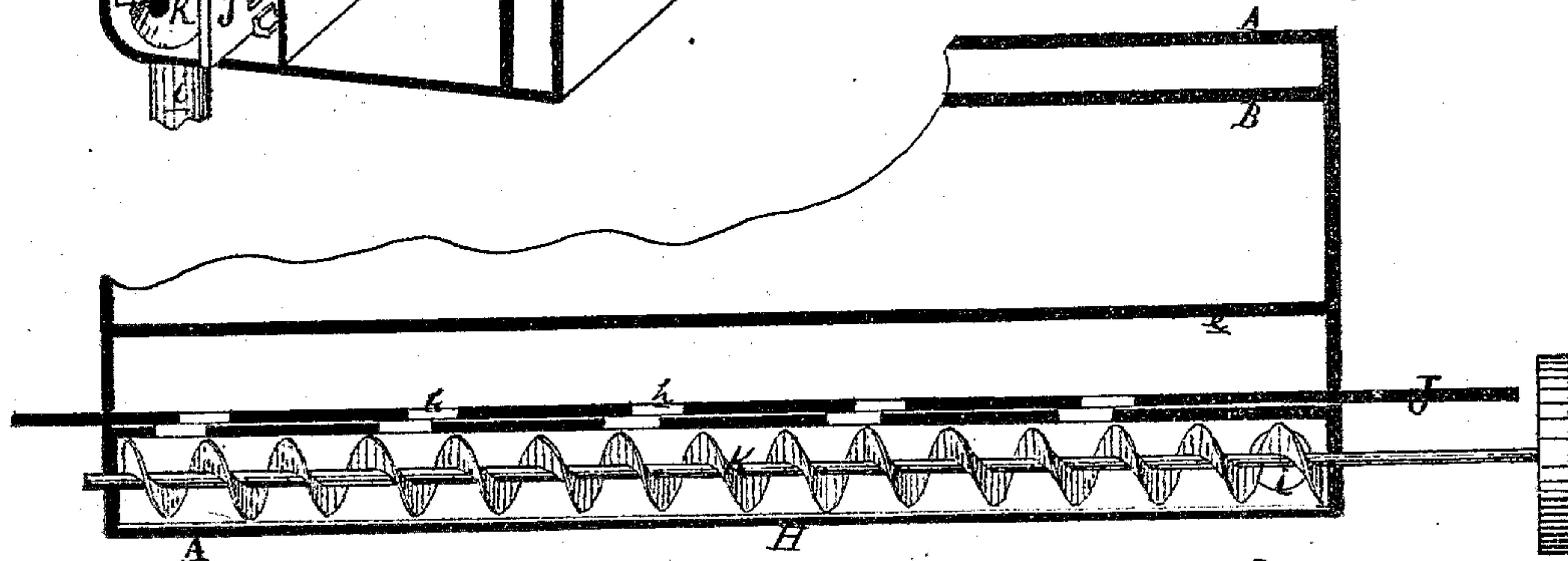


fig: 3



Witnesses:
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UNITED STATES PATENT OFFICE.

THOMAS W. EATON, OF KANKAKEE, ILLINOIS.

IMPROVEMENT IN GRAIN-DRIERS.

Specification forming part of Letters Patent No. 115,833, dated June 13, 1871.

To whom it may concern:

Be it known that I, THOMAS W. EATON, of Kankakee, in the county of Kankakee and State of Illinois, have invented a new and useful Improvement in Grain Driers and Coolers; and do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a perspective view of my device with one end removed, and a portion of one of the side walls removed or broken out to show the interior construction. Fig. 2 is a partial end elevation, showing the arrangement of the heating shelves and deflectors. Fig. 3 is a sectional view on the line *x x*, Fig. 1, showing the conveyer in full.

Like letters indicate like parts in each figure.

The nature of this invention relates to an improved construction of grain-driers and coolers; and it consists in placing within a suitable case, formed with double side walls, a series of shelves and pipes, over which the grain passes, becoming heated in its passage by steam that is continually circulating through the pipes beneath each shelf, the vapor rising from heated grain escaping through a flue formed by the double walls; and in the arrangement of the shelves, consisting of a plane and a perforated floor, with a space between them, through which space is forced a blast of cold air, passing up through the perforated shelf and through the grain, cooling the latter, and finding exit through the wall flues; and in the arrangement of a conveyer, to convey the grain from the cooler, as more fully hereinafter set forth.

In the drawing, A represents the outer walls, and B the inner side walls of my device. C is an inclining shelf, rigidly secured within the walls B, an opening, *a*, being left between its lower edge and the face of the wall. This shelf forms, with the walls, a hopper, through which the grain is fed to the drier and cooler. D and D' are perforated inclining shelves, rigidly secured within and to the walls, and are so arranged that the "slant" will be in alternate directions. At the lower edge of each of these shelves there are openings similar to the one, *a*, in the shelf C. The openings are to allow

the grain to pass freely from one shelf to another in its passage through the device. Underneath the shelves D and D', at or near the point where they are joined to the walls, are cut rectangular openings *b b'* in the walls B, for the purpose hereinafter set forth. A series of coiled pipes, *c*, is secured immediately beneath the shelves D, through which live steam is kept in continual circulation when the device is in use. E are the deflectors, hinged at their upper edges to the walls B, and are provided with rods *d*, which pass through both the inner and outer side walls, as shown more plainly in Fig. 2. F is a coil of steam-pipes, which may be placed above one or more of the shelves D, as may be desired. G are plane shelves, placed under the shelves D', forming with them cold-air chambers. The last or bottom shelf G forms, with the partition *e*, a hopper, L, into which the grain accumulates after having passed over the series of shelves and is in a comparatively dry state. From this hopper L the grain is let into the conveyer-chest H through the openings *h*, the feed being regulated by the slide-gate J. In this chest H is placed a conveyer, K, which conveys the grain to the outlet *i* in the bottom of the chest, from which it is carried by suitable troughs to the desired points.

The working of this device is as follows: The grain is fed through the hopper formed by the shelf C and the walls A B. It passes from this hopper to the first declining shelf D, where it is heated by the steam which is circulating through the pipes underneath it, the vapor which may arise finding exit through the opening *b* in the side wall. The grain then passes on in like manner over the remaining shelves D, the vapor passing off through the proper openings in the side wall, as before. The placing of the coil of pipes above the walls D is for the purpose of giving more heat to the grain, which consequently causes it to throw off more vapor; at the same time it more thoroughly stirs the grain up. After the grain reaches the upper shelf D' it begins to become cooled by reason of a blast of cold air that is forced into the chamber formed by the shelves D' and G. This chamber being tight upon all sides except that formed by the perforated shelf, the cold air finds exit through these

perforations, passes up through the grain, and, cooling it, finally passing off through the openings *b'* in the walls B. The grain then passes over the remaining shelves D', being cooled in its passage, until it reaches the hopper L, from whence it is fed into the conveyer-chest H, and is carried off by the conveyer K. The deflectors E are for the purpose of throwing the heat from the pipes up through the shelves D, and are also to catch any dust that may fall through them.

What I claim as my invention, and desire to secure by Letters Patent, is—

The grain-drier and cooler described, consisting of the walls A and B, shelves D D' and G, deflectors E, coiled pipes *c* and F, and conveyer K, all constructed, arranged, and operating substantially as and for the purpose herein set forth.

Witnesses: THOMAS W. EATON.
HARRY S. SPRAGUE,
W. S. ROGERS.