

R. J. WILLIAMS.
Grain Driers.

No. 142,184.

Patented August 26, 1873.

Fig. 1.

Fig. 2.

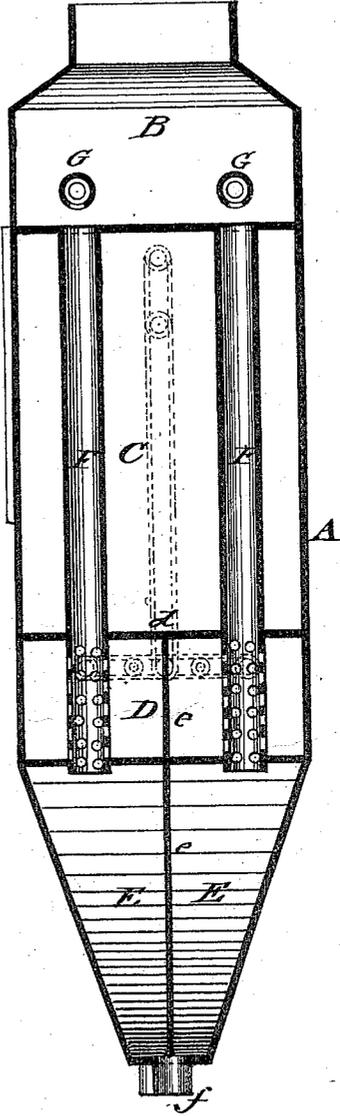
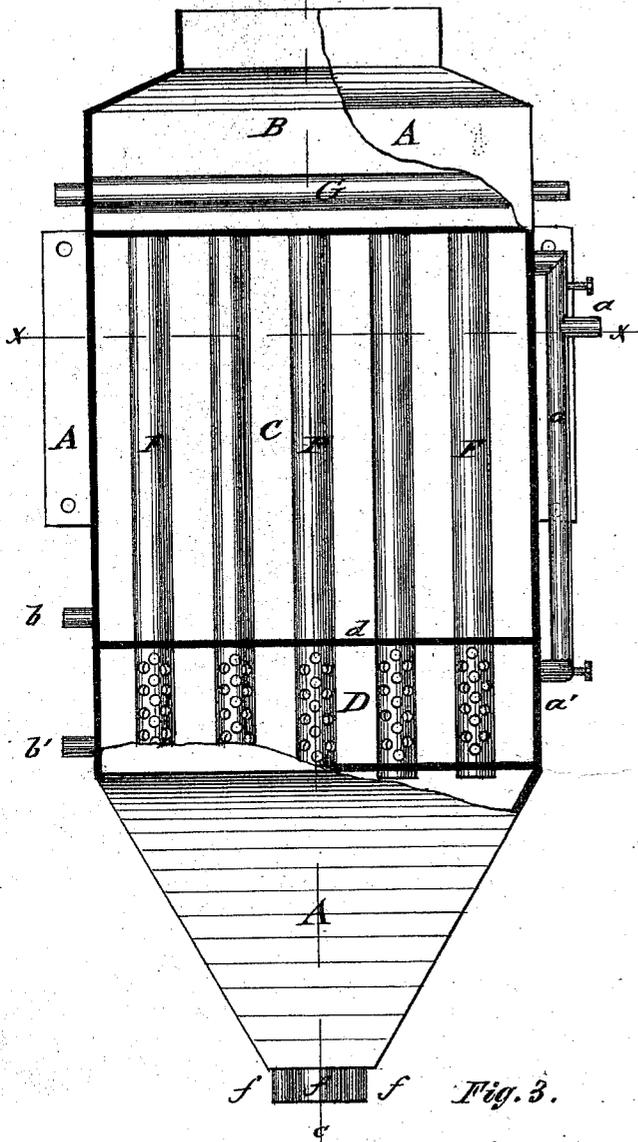
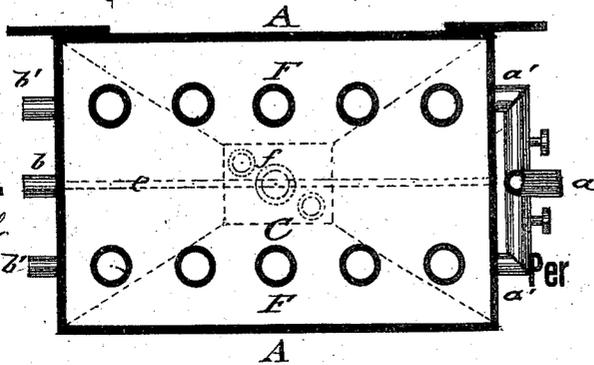


Fig. 3.



Witnesses.

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IMPROVEMENT IN GRAIN-DRIERS.

Specification forming part of Letters Patent No. 142,184, dated August 26, 1873; application filed May 5, 1873.

To all whom it may concern:

Be it known that I, RICHARD J. WILLIAMS, of Ottumwa, in the county of Wapello and State of Iowa, have invented a new and Improved Apparatus for Drying and Steaming Grain, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of my improved apparatus for drying and steaming grain partly opened to show the interior of the same. Fig. 2 is a vertical transverse section on the line *c c*, Fig. 1, and Fig. 3 a horizontal transverse section on the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of my invention is to furnish an improved apparatus for drying and steaming grain preparatory to grinding, by which the husks are toughened more rapidly than by the old process, and which is also arranged for passing husks of different texture through the same.

The preparation of the grain for grinding by toughening the husk or bran has hitherto been done by moistening the grain and then heating the same, the main object being the dampening of the bran and keeping dry the inside of the grain. The drying the grain after moistening does not only take longer time, but has also a softening influence on the interior, which is to be avoided, while by heating the grain first and dampening it afterward the husk will toughen in less time and the inside part of the grain remain perfectly dry. My apparatus is constructed on this principle; and consists of a series of tubes which pass the grain through the heating-chamber into the steam-chamber. The ends of the tubes which enter the steam-chamber are perforated to facilitate the moistening process. By means of different steam-chambers and increased admission of steam husks of different texture may be prepared and passed through at the same time.

In the drawing, A represents the outer casing of my apparatus, which consists of four main compartments—the receiving-chamber B, the heating-chamber C, the steam-chamber D, and the discharging-chamber E. The grain is admitted into receiving-chamber B and passes then through vertical tubes F arranged to extend through the heating and

steam chambers to the discharging-chamber. Horizontal tubes G pass through receiving-chamber B, being slotted at the lower side immediately over tubes F, and serve thereby as ventilators for grain when passing through tubes F. The evaporated moisture is thereby prevented from passing out through the grain, and, being drawn off to the outside, accelerates the drying process of the same. Tubes G are regulated on the outside by suitable stop-cocks. The steam is admitted to the heating and steam chambers C D by steam-pipes *a* and regulated by suitable stop-cocks. Pipe *a* is connected, by branch pipes *a'*, to the different compartments of the steam-chamber. Outlet-pipes *b* and *b'* keep up the current. A horizontal partition, *d*, separates the receiving-chamber E from steam-chamber D, which is again divided into compartments by vertical partitions *e*. A vertical partition will also be arranged in compartment B, so that grain having husks of different textures or thicknesses may be divided and subjected to a greater or less degree of moisture. For this purpose the ends of the tubes F which enter the chamber D are perforated to allow access of steam to the grain as it passes through them, the tubes not in use for the purpose being stopped by suitable plugs.

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

1. The apparatus for drying and steaming grain, consisting of receiving-chamber B, heating-chamber C, steam-chamber D, discharging-chamber E, and the tubes F perforated within the chamber D, arranged and operated substantially as and for the purposes described.

2. The connecting-tubes F having that portion within the chamber D perforated for the admission of steam to dampen the grain, as specified.

3. The discharging-chamber E having the exit-pipes *f* arranged to correspond with the compartments of the steam-chamber to separate varieties of grain having husks of different textures, substantially as and for the purpose specified.

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Witnesses:

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