

C. T. HANNA.

Wheat Steamer and Drier.

No. 107,680.

Patented Sept. 27, 1870.

Fig. 1.

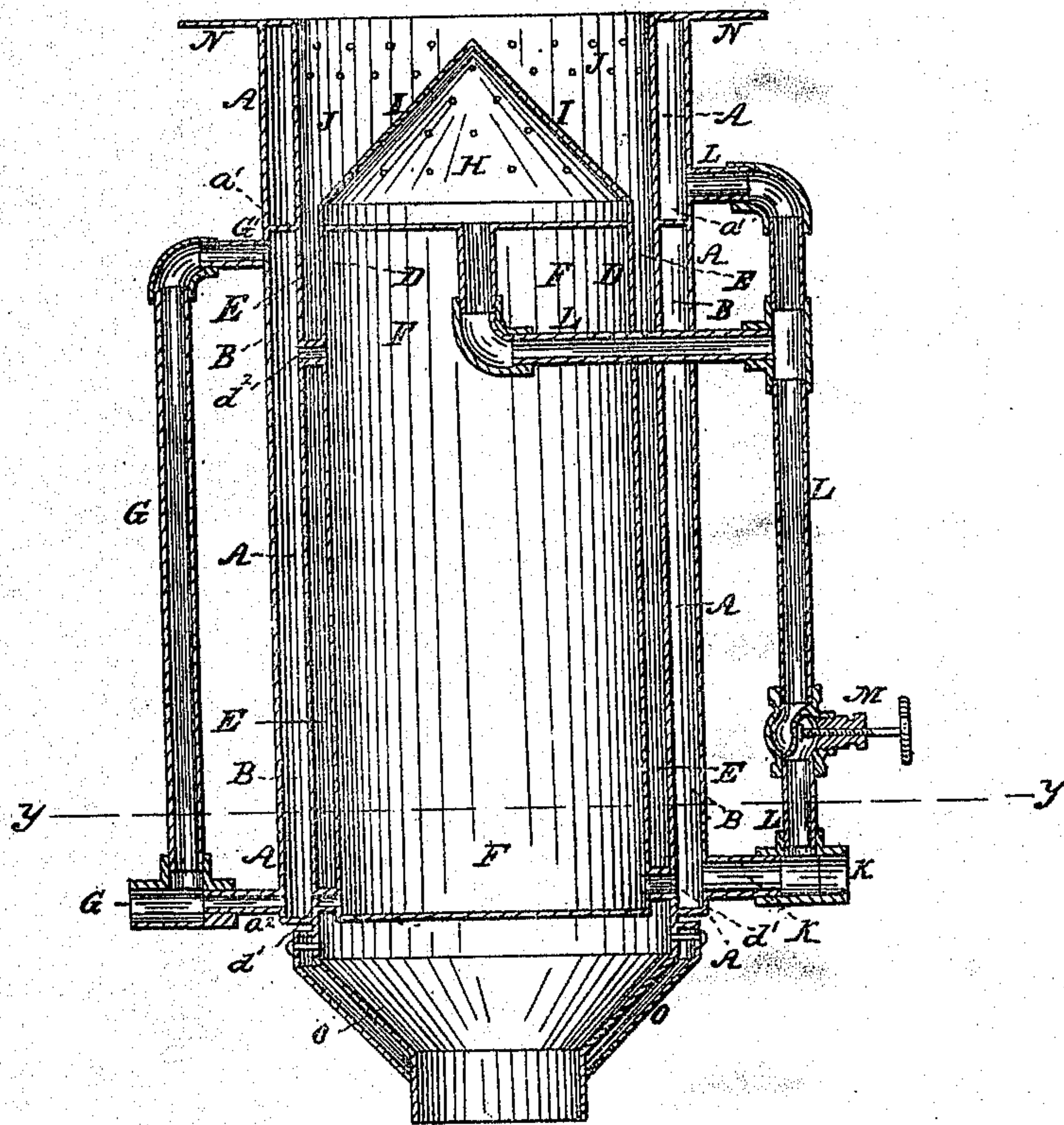
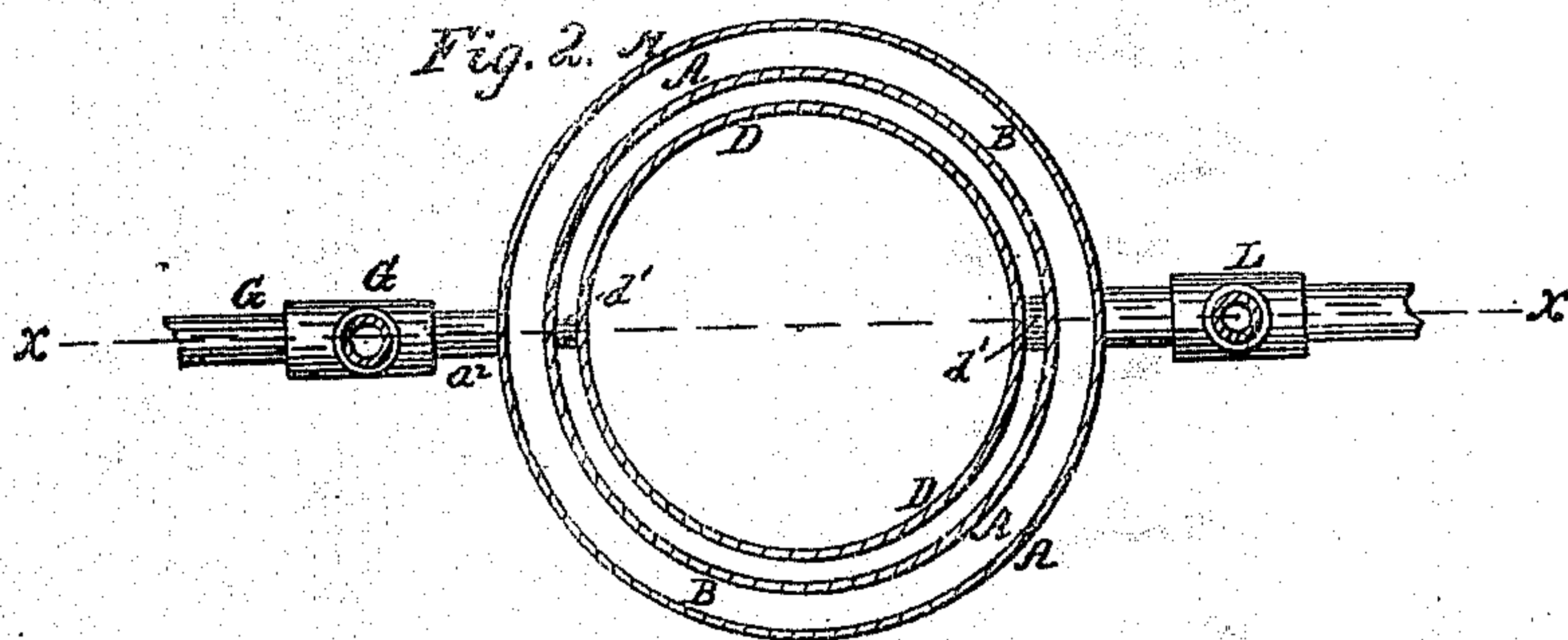


Fig. 2.



Witnesses:  
A. B. Bunnell & Co.  
S. S. Mabee

Inventor:  
C. T. Hanna  
PER [Signature]  
Attorneys.



# UNITED STATES PATENT OFFICE.

CYRUS T. HANNA, OF KEOKUK, IOWA.

## IMPROVEMENT IN WHEAT STEAMERS AND DRIERS.

Specification forming part of Letters Patent No. **107,680**, dated September 27, 1870.

*To all whom it may concern:*

Be it known that I, CYRUS T. HANNA, of Keokuk, in the county of Lee and State of Iowa, have invented a new and useful Improvement in Wheat Steamer and Drier; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification.

Figure 1 is a detail vertical section of my improved apparatus, taken through the line *x*, Fig. 2. Fig. 2 is a horizontal cross-section of the same, taken through the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish an improved apparatus for steaming and drying wheat, to soften it preparatory to grinding, which apparatus shall be simple in construction, effective in operation, and easily applied; and it consists in the construction and combination of various parts of the apparatus, as hereinafter more fully described.

A is the outer case of the apparatus, which is cylindrical in form, and is made with a double wall, so as to form a steam space or chamber, which space is divided by a partition, *a*<sup>1</sup>, in its upper part, into two unequal chambers, B C. D is the inner case, which is also made cylindrical in form, and enough smaller than the case A to allow the wheat to feed slowly through the space E between the said cases A D. The case D is made with close ends to form a steam-chamber, F. The cases A D are connected to each other at their lower ends by the pipes *d*<sup>1</sup>, and near their upper ends by one or more pipes, *d*<sup>2</sup>, so that the steam may circulate freely through the spaces or chambers B F. The pipes *d*<sup>1</sup> also allow the condensed steam to flow from the space F into the space B, from which it escapes through the pipe *a*<sup>2</sup> into the exhaust or waste pipe G.

Upon the upper end of the case D is formed a conical chamber, H, the conical wall I of which is perforated with numerous small holes, to allow the steam to escape from the chamber H into the space or chamber J, to moisten and soften the wheat as it passes through said space or chamber. The upper part of the inner wall of the chamber C is also perforated

with numerous small holes for the same purpose.

K is the pipe through which the steam is brought from the boiler or the exhaust-pipe of the engine and introduced into the chambers B F, and which should be provided with a stop-cock in the ordinary manner.

L is a steam-pipe, the lower end of which is connected with the steam-pipe K. The upper part of the pipe L is branched, one branch connecting with the chamber C, to introduce steam into said chamber C, and the other branch passing in through the cases or walls A D, and connecting with the chamber H, to introduce steam into said chamber. The lower part of the pipe L is provided with a stop-cock, M, by which the entrance of steam into the chambers C H may be regulated at will, or wholly prevented when desired.

Upon the upper end of the outer case, A, is formed a flange, N, by means of which the apparatus may be secured to and suspended from the frame-work of the mill, or other suitable support. To the lower end of the outer case, A, is secured, by bolts or otherwise, a conical-shaped funnel, O, the inclined walls of which are made double, to prevent the wheat from being cooled while passing through it.

The lower end of the funnel O is made with a tubular flange to guide the wheat into the spout or pipe through which it passes to the grinding-stones. The wheat is conducted into the chamber J by a spout or other convenient means.

In using the apparatus, the valve in the pipe K is opened, and the steam is admitted to the chambers B F. The grain is then admitted and allowed to pass through the apparatus to the stones. If the stones do not grind soft enough, the valve or stop-cock M is gradually opened until the stones grind to suit, allowing the steam to enter the chambers C H and pass through the holes in the inner walls of said chambers to the wheat as it passes through the chamber J, the wheat being heated and dried as it passes through the chamber E between the steam-chambers B F.

In grinding very hard wheat, the valve in the pipe G may be partially closed; but in ordinary cases it should be left open, allowing the surplus steam to escape freely.

Having thus described my invention, I



claim as new and desire to secure by Letters Patent—

1. The combination of two steam-chambers, B F, with an intermediate chamber, E, through which the grain flows, as and for the purpose described.

2. The arrangement, in the midst of a grain-steaming chamber, J of a cone, I, to automatically feed the grain, by its own gravity, into a chamber below, as shown and described.

3. The combination of the steam-chambers H and C, with perforated walls, and the steam-chambers F and B, with close walls, with each other, to form the steaming-chamber J and drying-chamber E, substantially as herein shown and described, and for the purpose set forth.

4. The combination of a series of pipes, K L G  $d^1$   $d^2$   $a^2$ , or their equivalent, with the steam-chambers B F H C, for the purpose of introducing, circulating, and removing the steam, and carrying off the condensed steam, substantially as herein shown and described.

5. The combination, with a grain-steaming apparatus, of the funnel-shaped, double-walled chamber O, placed thereunder, as and for the purpose specified.

CYRUS T. HANNA.

Witnesses:

C. F. DAVIS,

H. ROBERTSON.