(No Model.)

H. R. HEFFNER.

GRAIN DRIER.

No. 254,968. Patented Mar. 14, 1882

Fig: 1.

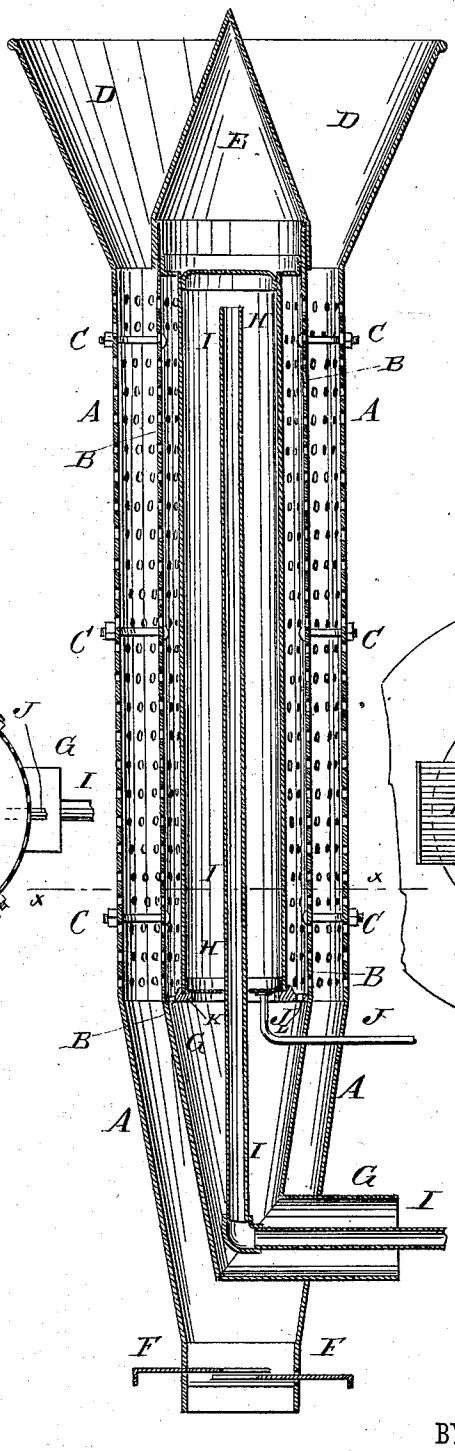


Fig: 2.

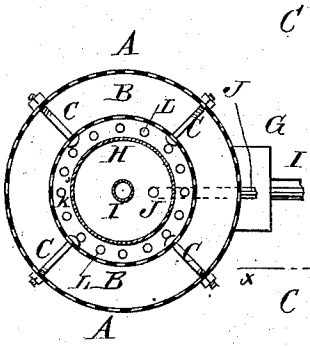
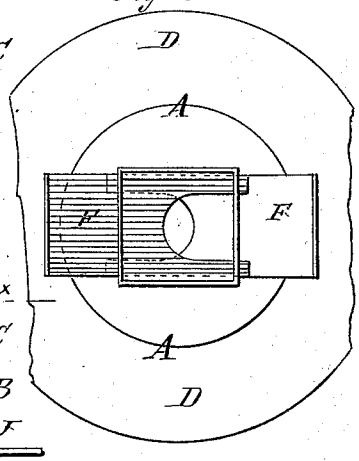


Fig: 3.



WITNESSES:

Chas. Nida.

C. Sedgwick

INVENTOR:

H. R. Heffner

BY Munn & Co.

ATTORNEYS.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

HENRY R. HEFFNER, OF CIRCLEVILLE, OHIO.

GRAIN-DRIER.

SPECIFICATION forming part of Letters Patent No. 254,968, dated March 14, 1882.

Application filed August 23, 1881. (No model.)

To all whom it may concern:

Be it known that I, HENRY R. HEFFNER, of Circleville, in the county of Pickaway and State of Ohio, have invented a new and useful Improvement in Grain-Driers, of which the following is a full, clear, and exact description.

In the accompanying drawings, Figure 1 is a sectional side elevation of my improvement. Fig. 2 is a sectional plan view of the same, taken through the line *x x*, Fig. 1. Fig. 3 is a bottom view of the same.

Similar letters of reference indicate corresponding parts.

The object of this invention is to facilitate the drying of grain.

A represents an upright hollow cylinder of any desired length and size. The cylinder A is designed to be supported in an upright position by a suitable frame, and is finely perforated.

Within the cylinder A is placed concentrically a smaller cylinder, B, which is also finely perforated, and is connected with and supported from the said cylinder A by bolts C, which also serve to distribute the grain as it is passing through the space between the two cylinders.

To the upper end of the cylinder A is attached a flaring or funnel-shaped hopper, D, to guide the grain into the space between the cylinders, and to the upper end of the cylinder B is attached a conical top, E, to prevent the grain from lodging upon the top of the said cylinder B.

The lower part of the cylinder A may be tapered, and its lower end is closed by two slides, F, the inner ends of which are concave and overlap each other, as shown in Figs. 1 and 3, so that by adjusting the said slides F the size of the discharge-opening can be regulated, as may be desired, to detain the grain a longer or shorter time in the drier, as its dampness may require. The moisture expelled from the grain by the heat escapes through the perforations of the cylinder A.

When the grain is to be dried with hot air the said hot air is introduced into the inner cylinder, B, through a pipe, G, connected with the lower end of the cylinder B, passing through the side of the lower part of the cylinder A and connected with the hot-air coil or chamber of an ordinary air-heating furnace.

When the grain is to be dried by steam a steam-tight cylinder, H, is suspended within the cylinder B, and steam is introduced into it through the pipe I, which preferably passes in through the air-pipe G, enters the lower end of the cylinder H, and extends nearly to the upper end of the said cylinder H. The cold air in the cylinder H is driven off, and the exhaust steam and the water of condensation escape through the small pipe J, connected with the lower end of the cylinder H, and which passes out through the sides of the cylinders B A. With this construction air enters through the pipe G, is heated by the steam-cylinder H, passes through the perforations of the cylinder B into and through the mass of grain, and the air and moisture escape through the perforations of the outer cylinder, A, so that the grain will be quickly and thoroughly dried.

The lower end of the steam-heated cylinder H can be centered in the inner cylinder, B, by a collar, K, attached to the said lower end of the cylinder H and resting against the inner surface of the said cylinder B. The collar K, when used, should be provided with apertures L for the passage of air.

With this construction the drying can be done either by hot air or by steam without changing the apparatus.

I am aware that it is not new to connect two upright cylinders by bolts, so that they will serve as grain-distributers, or to arrange the conical top of the inner cylinder even with or above the top of the hopper; but

What I claim is—

1. The combination, with the perforated concentric cylinders A B, of the air-pipe G, inner cylinder, H, and the steam-supply pipe I, the latter passing through the air-pipe, entering the lower end of cylinder H, and extending nearly to its upper end, as and for the purpose specified.

2. In a grain-drier, the combination, with the outer cylinder, A, of the two slides F F, concave at the inner ends and overlapping each other, as and for the purpose specified.

HENRY R. HEFFNER.

Witnesses:
S. L. GRIGSBY,
A. R. BOLIN.