(No Model.)

A. WOLCOTT.

GRAIN DRIER.

No. 346,449. Patented July 27, 1886.

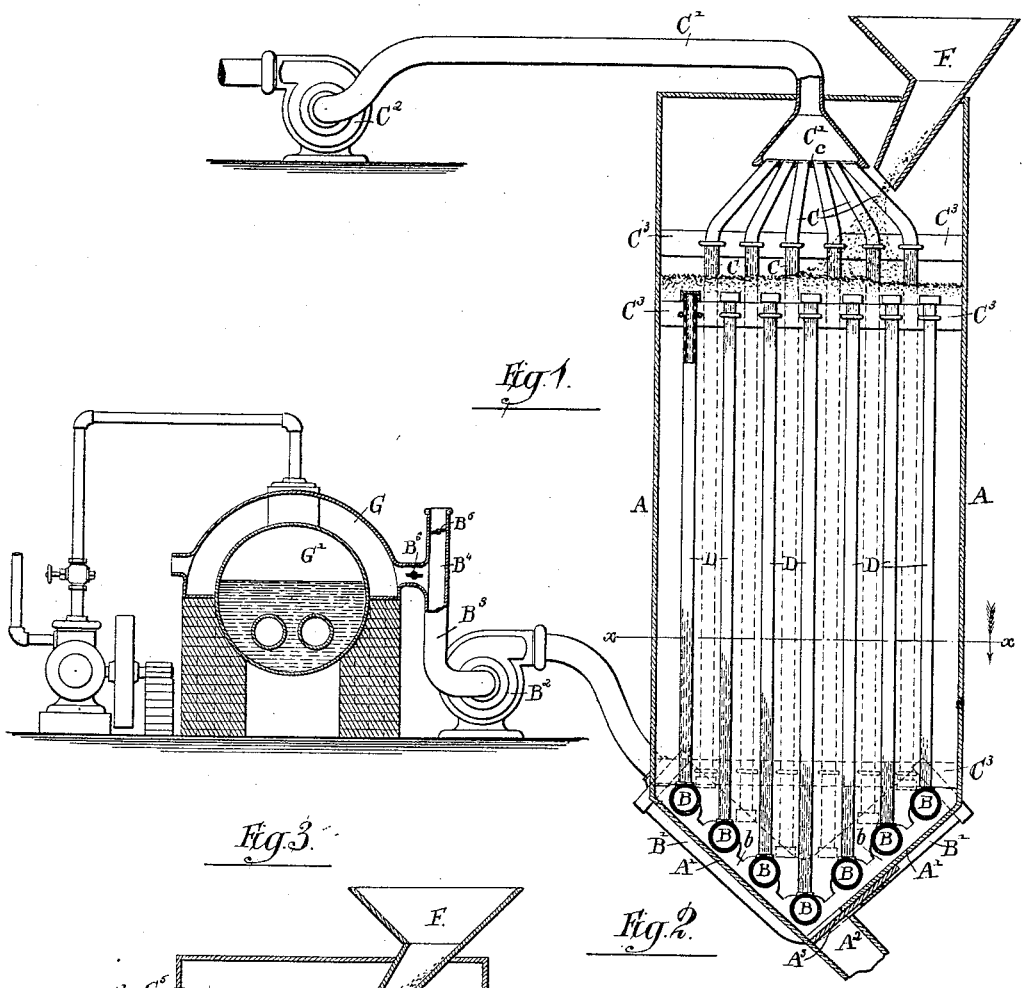


Fig. 1.

Fig. 3.

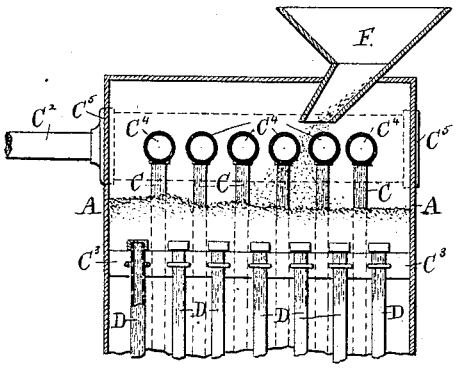
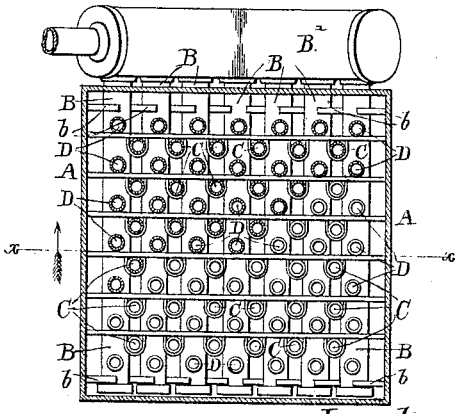


Fig. 2.



Witnesses:-
Louis W. Whitehead.
C. C. Poole

Inventor:-
Anson Wolcott.
by:- M. E. Dayton Attorney.

UNITED STATES PATENT OFFICE.

ANSON WOLCOTT, OF WOLCOTT, INDIANA.

GRAIN-DRIER.

SPECIFICATION forming part of Letters Patent No. 346,449, dated July 27, 1886.

Application filed November 27, 1885. Serial No. 184,014. (No model.)

To all whom it may concern:

Be it known that I, ANSON WOLCOTT, of Wolcott, in the county of White and State of Indiana, have invented certain new and useful Improvements in Grain-Driers and Coolers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of grain driers and grain-coolers which comprise a bin or receptacle for holding the grain, and means for inducing an air-current through the grain for drying or cooling the latter.

The invention consists in the matters hereinafter described, and pointed out in the appended claims.

In the accompanying drawings, illustrating my invention, Figure 1 is a view showing a grain receptacle or bin in vertical section, together with means for forcing heated or cold air through the bin, as will be hereinafter described, the section of the bin being taken upon a vertical plane indicated by the line *x x* of Fig. 2. Fig. 2 is a plan section of the bin shown in Fig. 1, taken upon line *x x* of said figure. Fig. 3 is a fragmentary sectional view showing the upper part of a bin containing other forms of devices for forcing air through the grain.

In the particular form of devices illustrated in said drawings, A is a closed grain bin or receptacle.

B B are a series of air-pipes located in the bottom of the bin and connected at their ends with an air-trunk, B′, located outside of the bin and supplied from a blower, B^2, or otherwise.

C C indicate a series of vertical perforated pipes located within the bin, closed at their lower ends and connected at their upper ends with an exhaust-tube, C′, communicating with the induction opening of a blower, C^2; and D D are a series of vertical perforated tubes located within the bin between the tubes C C, and closed at their upper ends and connected at their lower ends with the air-pipes B.

F is a spout through which grain is delivered to the bin.

In the operation of the devices embracing the parts above described, the bin is filled, preferably, to a point above the upper ends of the tubes C C, and a current of air is induced by the action of the blowers B^2 and C^2 through the trunk B′, the pipes B, the perforated tubes C C, the perforated tubes D, and the pipe C′, such air-current passing through the mass of grain between the pipes B and C, and thereby removing the moisture from said grain.

In the particular construction illustrated, the bin A is formed with a hopper-bottom consisting of two oppositely-inclined walls, A′ A′, and is provided with a suitable grain-exit spout, A^2, having a gage, A^3. The pipes B are, as shown, arranged parallel with and adjacent to the bottom walls, A′, and are sustained from the latter by means of strips or cradles *b*.

The vertical air-tubes C and D may be constructed in any suitable way or form, with perforations for the exit and influx of air to the tubes, said perforations being made of the proper size and form to prevent the entrance of grain to the tubes. As shown in the drawings, said tubes are, for the purpose mentioned, provided with narrow vertical slits in their parts surrounded by the grain. The tubes may be sustained within the bin in any suitable manner, the means herein shown for this purpose consisting of stationary horizontal bars C^3, secured to the walls of the bin near the upper and lower ends thereof. The lower ends of the pipes C are desirably closed by removable caps, as shown, whereby the said lower ends of the tubes may be readily opened for cleaning them.

In the operation of the devices the removal of moisture from the grain may be facilitated either by means of heating-coils placed within the bin, or by heating the air preparatory to its introduction therein.

As herein shown, means are provided for heating the air preparatory to its introduction into the lower part of the bin, consisting of an air-jacket, G, placed around the upper part of an adjacent steam-boiler, G′, and communicating with the induction-passage B of the blower B^2. To enable the grain within the bin to be cooled, either after it has been dried by the use of hot air, or when it is desired to dry slightly moist or to cool heated grain, cold air may be introduced into the bin through a cold-air inlet,

B^4, formed in the induction-pipe B^3, said inlet being desirably provided with a valve or damper, B^5, and the induction-pipe with a valve, B^6, between the jacket or heating-chamber G and the cold-air inlet, whereby either hot or cold air may be delivered to the bin, as desired.

In the form of the device shown in Fig. 1 the upper ends of the several pipes C are bent or deflected inwardly toward each other, said upper ends of the pipes being secured in a diaphragm, *c*, closing the opening of the pipe C'. Instead of this construction, that shown in Fig. 3 may be used, in which the upper ends of the several pipes C communicate with a series of transverse imperforate pipes, C^4, which communicate at their ends exterior to the bin with an air trunk, C^5, communicating with the pipe C', the result in both cases obviously being the same.

In a prior patent, No. 329,422, granted to me upon the 27th day of October, 1885, a drying apparatus, generally similar to that above set forth, is described and claimed. As shown in said patent, the several pipes C are open at their upper ends within the bin instead of being connected directly with an air-exit pipe passage, as herein shown. The latter construction has the obvious advantage of giving greater certainty of action in the device, for the reason that by the connection of the said pipes C with the exit-passage all the air carried through the bin is caused to pass directly through the grain held between the said pipes C and D. An important advantage gained by the employment of a double series of perforated pipes, as herein shown, is that a simple and effective means is thereby obtained for introducing air to all parts of the mass of grain within the bin.

The bin is herein shown as closed at its top, but this construction is obviously not necessary, inasmuch as the air will be drawn through the grain between the exit and inlet air tubes in the same manner when the bin is open at its top as when closed, and the bin need not, therefore, be made air-tight at its top, as is necessary in the construction illustrated in said prior patent.

I claim as my invention—

The combination, with a bin for holding grain, of a series of vertical perforated air-tubes located within the bin, closed at their upper ends, and connected at their lower ends with an air-passage, a second series of vertical perforated air-tubes located between the tubes first mentioned and connected at their upper ends with an air-passage, and without communication at said upper ends with the interior of the bin, and means for producing a current of air through the said passages and tubes, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

ANSON WOLCOTT.

Witnesses:
C. CLARENCE POOLE,
M. E. DAYTON.