H. Y. & A. Haupt.

Grain Dryer.

No. 2,867. Patented Dec. 5, 1842.

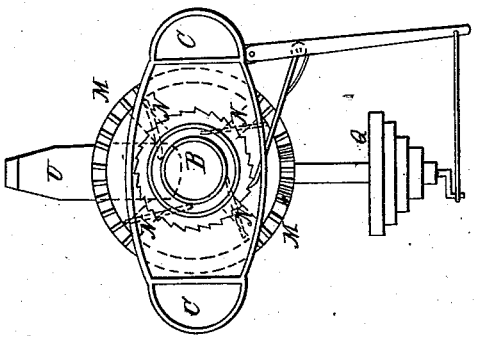

Fig. 3.

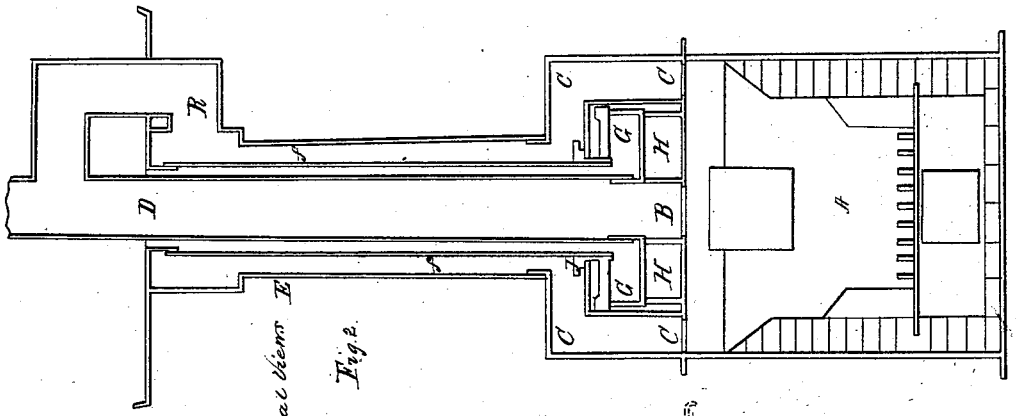

Fig. 2.

Sectional view

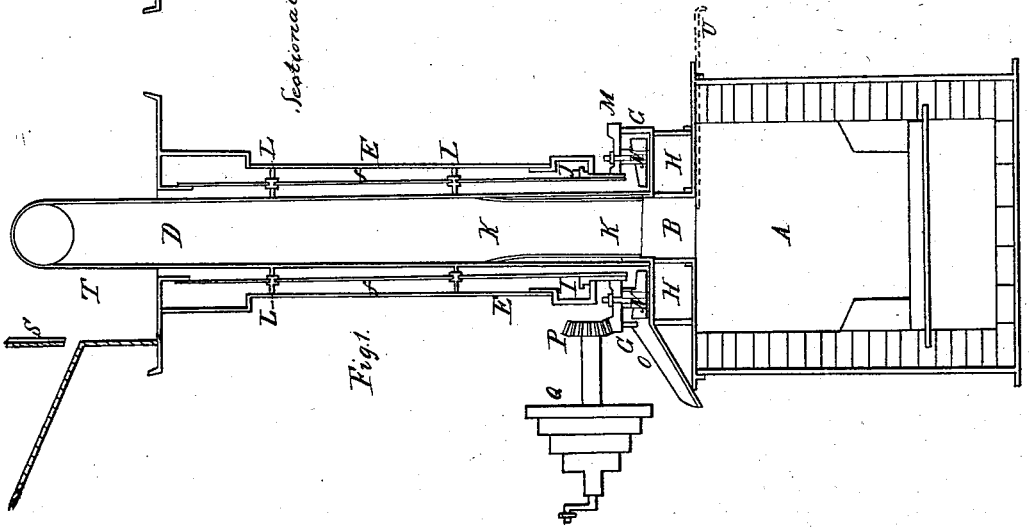

Fig. 1.

UNITED STATES PATENT OFFICE.

HENRY Y. HOUPT, OF SPRINGFIELD TOWNSHIP, AND ABM. HAUPT, JR., OF DURHAM TOWNSHIP, COUNTY OF BUCKS, PENNSYLVANIA.

KILN FOR DRYING GRAIN.

Specification of Letters Patent No. 2,867, dated December 5, 1842.

To all whom it may concern:

Be it known that we, HENRY Y. HOUPT, of Springfield township, in the county of Bucks and State of Pennsylvania, and ABRAHAM HAUPT, Jr., of Durham township, in the county and state aforesaid, have invented a new and useful Kiln for Kiln drying Corn or other Grain or Seeds Requiring the Use of Fire to Produce that Effect; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a sectional elevation of the kiln; Fig. 2, a vertical section, and Fig. 3 a sectional ground plan.

In the drawing herewith annexed the same letters refer to the same parts of the work in the figures.

A, Fig. 1, is a furnace or stove which is furnished with a fire grate and other appendages necessary for burning stone coal.

B is a center flue through which heat ascends from the stove into a sheet iron pipe or cylinder D, D, which is called the inside heater.

C, C, C, C, Fig. 2 are two flues by which heat is conveyed into a sheet-iron casing E, E, which is called the outside heater. The corn that is undergoing the operation of kilndrying is contained in another sheet-iron pipe *f*, *f*, which surrounds the heater D, and being about two inches larger in diameter leaves a space of about one inch all around the heater D to receive the corn which is thrown in at the top of the kiln as shown at T, and passes down between the two pipes falls into a castiron circular pan at G, G, this pan is called the discharge pan and is placed over the center of the stove leaving a space of about four inches between the top plate of the stove and the bottom of the pan as at H, H, which space may be filled in with brick the flue B passes through the center of the discharge pan.

I, I, is a collar into which the lower end of the pipe *f* is fastened passing through the bottom plate of the outside flues and resting on a flange of the collar. There are ratchets on the outside of the flange the use of which is to move the collar round by the application of a lever and moving hand thereby moving the pipe *f* to loosen the corn in case it should get choked or stick in its passage between the heaters but this will seldom be the case if the pipes are made of the smoothest kind of sheet iron unless the kiln is overheated.

K, K, is a sheet-iron pipe or fender to guard the lower end of the heater D from receiving too much heat. L, L, L, L are guide bolts for the purpose of dividing the space properly between the pipes throughout the kiln, these bolts are made with a small shoulder about one inch from the end and a screw cut from the other end up to the shoulder about two inches long then by having two or three joints of the pipe *f*. Riveted firmly together the next joint may be fastened together by three or four of these screw bolts placing the heads inside and the screws outside of the pipe and so on fastening every third or fourth joint together by this kind of screw bolt.

B, Fig. 3 is the opening of the center flue in the upper part of the stove over which is placed a damper M, whereby to check the excess of heat from ascending the flue in case the stove should be overheated C, C, are the openings of the outside flues M, M, is a discharge wheel with scrapers attached to the arms as at N, N, N, N. This wheel is placed over the discharge pan G. Fig. 1 as shown at M and playing around the lower end of the pipe *f* and moving the scrapers N, N, around in the bottom of the pan thereby drawing the corn from under the heaters and discharging it by the spout C, P, is a small pinion geared into the wheel M.

Q is a band wheel which is divided into several parts having different diameters and being operated on by a band from some convenient machinery then by shifting the band from one part of the wheel to another the motion of the pinion P is increased or diminished thereby regulating the discharge of the corn from the kiln as may be required according to the heat in the heaters.

R is a side pipe connected with the outside heater E, and extending into a chimney for the purpose of conveying off the smoke and giving draft to the outside heater. There is also a pipe extending from the inside heater D to convey off the smoke and give draft thereto. S is a slide shutter opening into a granary from which the kiln is fed.

The kiln should be at least twenty feet high from the lower end of the heaters where the corn is discharged to the upper end of the heaters where it is received into the kiln; to give sufficient time for the corn to receive the required heat then by having a good fire in the furnace or stove and putting the discharging apparatus into operation the corn will slide down gradually between the heaters receiving heat from both inside and outside heaters and will be discharged from the kiln at the lower end of the said heaters from thence it is conveyed off into a granary to cool and the operation of kilndrying is complete.

We do not claim to be the inventors of the principle of drying grain in heated cylinders but

What we do claim as our invention and which we desire to secure by Letters Patent is—

Passing the grain between two vertical cylinders placed over a furnace heated, air being made to pass through the inner cylinder and in a space between the second cylinder and a casing outside of it in manner substantially as herein described.

HENRY Y. HOUPT.
ABM. HAUPT, JR.

Witnesses:
J. K. LONG,
JOHN HOUPT.