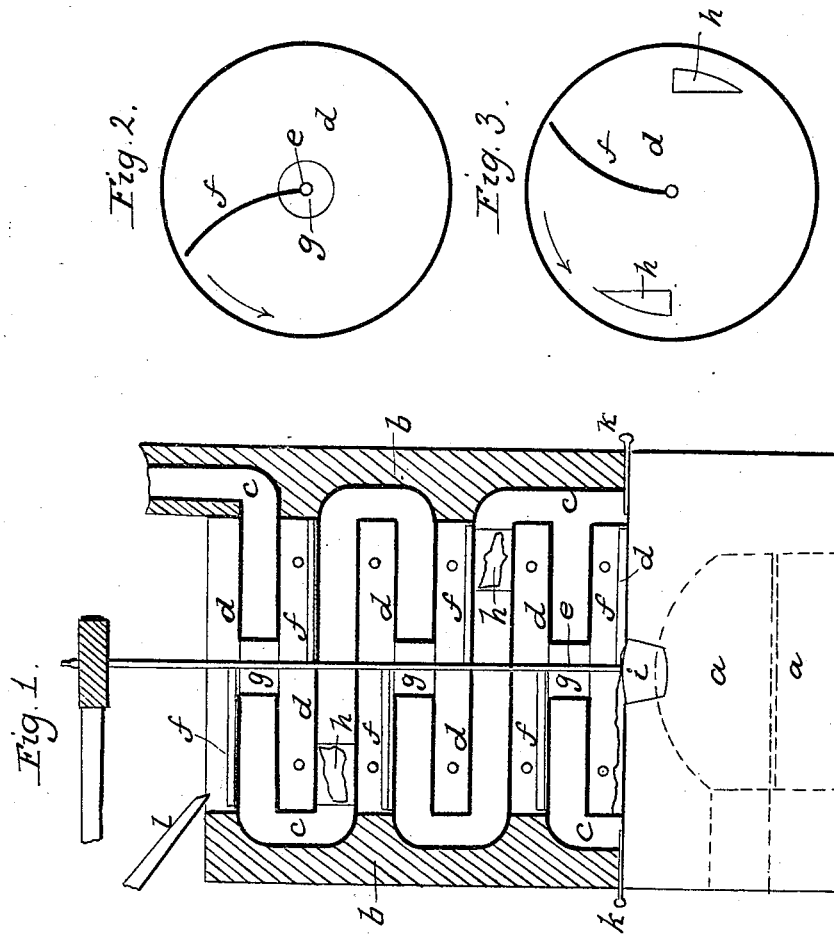


J. R. HOOPES.
Grain Drier.

No. 7,601.

Patented Aug. 27, 1850.



UNITED STATES PATENT OFFICE.

JOHN R. HOOPES, OF WEST PHILADELPHIA, PENNSYLVANIA.

GRAIN-DRIER.

Specification of Letters Patent No. 7,601, dated August 27, 1850.

To all whom it may concern:

Be it known that I, JOHN R. HOOPES, of West Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in a Kiln for Drying Corn and other Grain; and I do hereby declare the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and letters marked thereon, forming a part of this specification.

Figure 1 represents a vertical section through the center of my kiln and furnace; Fig. 2, a transverse section showing the top of one of the drying plates with a circular passage through the center, and the position of the curved fan attached to the shaft, revolving in the direction of the arrow. Fig. 3, a transverse section, showing the top of one of the drying plates with the openings or passages on the side or periphery of the drying plate, and the reversed position of the fan.

The nature of my improvement consists in arranging horizontally a series of six or more drying plates, connected with each other by tubes forming passages for the grain, and having flues passing under and above them forming grain chambers, and a vertical shaft passing through the center of the plates and chambers (which is made to revolve by a band passing around a pulley at its upper end) to which is attached a series of arms or flanges one to each chamber; these curve alternately in opposite directions, producing a centripetal and centrifugal motion to the grain, drawing it through the respective passages leading from each chamber, and keeping it in constant agitation, preventing it from adhering to the plates or burning, as hereafter more fully described.

To enable others to make and use my invention I will proceed to describe its construction and operation.

The kiln may be constructed of sheet iron or other suitable material, and surrounded with the brickwork forming the furnace and chimney, as represented in the drawing, or in any other manner experience may prove to be best.

a a, represents the furnace and ash pit

made in the usual manner for burning wood or coals; *b b*, the brickwork forming the casing around the kiln, and terminating on one side in a chimney, into which the ends of the flues *c c c c* enter, forming an exit for the smoke.

d d d d d d are the drying plates having flues passing under and above them forming the grain chambers, which are connected alternately by circular passages through the center, and passages leading from the peripheries of the drying plates, as shown at *g g g* and *h h*.

e is the vertical shaft (having its gudgeons, one near the pulley and the other falling into a socket in the bottom of the lower drying plate) to which is attached at right angles the arms *f f f f f f*, revolving near the upper surface of each drying plate, and curving in opposite directions as shown in Figs. 2, and 3, for the purpose of giving alternately a centripetal and centrifugal impulse to the grain to draw it through the respective openings or passages *g g g*, and *h h*, and conducting it from chamber to chamber until it is discharged at the exit pipe *i*; *k, k*, dampers to regulate the heat; *l*, the hopper to supply the apparatus with grain.

The operation of my kiln is obviously as follows. Having regulated the heat by means of the dampers, and put the shaft in motion, the grain supplied from the hopper falling upon the top plate, will be agitated by the arm, and by the centripetal motion given to it, will be drawn through the center passage around the shaft, and delivered upon the center of the second drying plate, where the fan curving in the opposite direction, will reverse the draft, or give the grain a centrifugal motion, which will draw it through the outer passages leading from the periphery of the second plate into the next chamber; continuing in this manner alternately through the center and outer openings successively through all the chambers, and finally delivering the grain completely dried through the exit pipe into a receptacle.

What I claim as my invention and desire to secure by Letters Patent, is—

The arranging a series of drying plates

one above another, connected by passages as described, in connection with the vertical shaft and arms thereon, curving alternately in opposite directions, combined and arranged in the manner and for the purpose herein fully set forth.

In testimony whereof he has hereunto

signed his name before two subscribing witnesses.

JOHN R. HOOPES.

Witnesses:

W. GRAHAM HOOPES,
H. B. ALEXANDER.