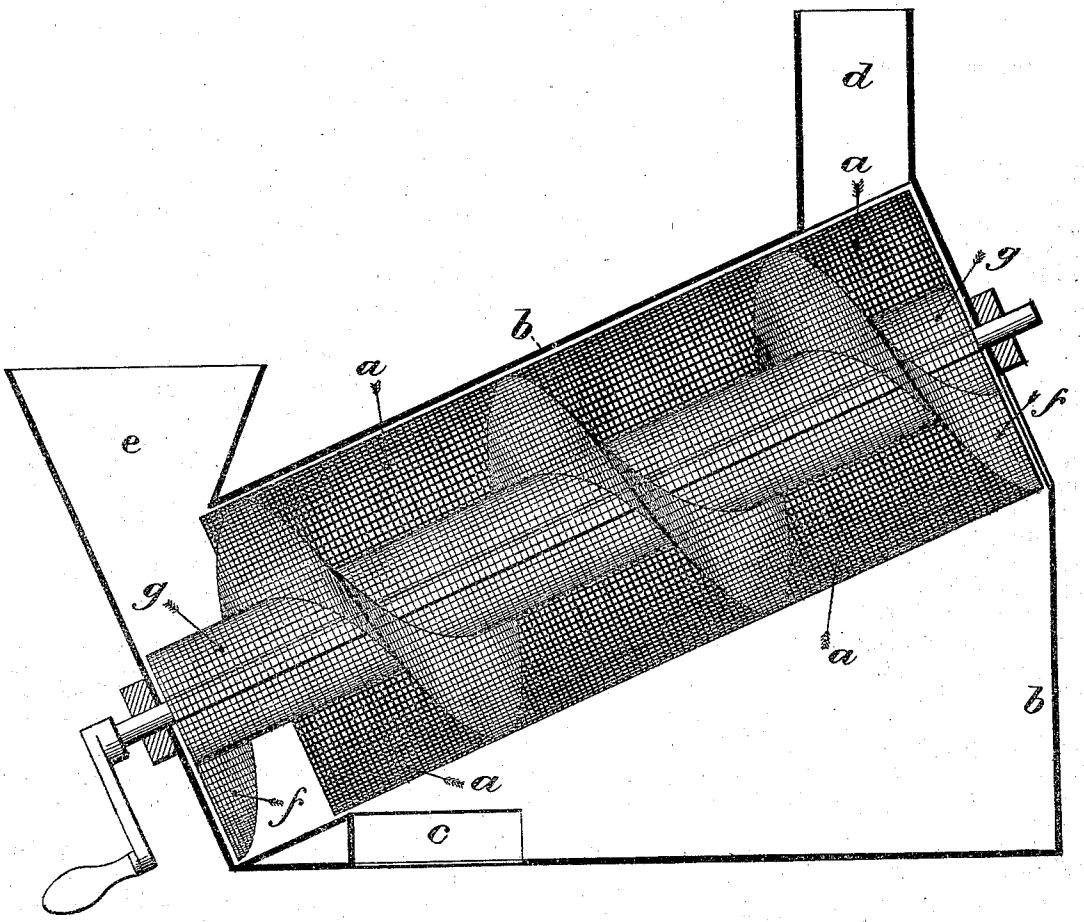
MINNIE BUCKLIN LLOYD.

Grain and Malt-Driers.

No. 147,662. Patented Feb. 17, 1874.



Witnesses.

A. T. Davis

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MINNIE B. LLOYD, OF NEW YORK, N. Y.

IMPROVEMENT IN GRAIN AND MALT DRIERS.

Specification forming part of Letters Patent No. **147,662**, dated February 17, 1874; application filed March 10, 1873.

To all whom it may concern:

Be it known that I, MINNIE BUCKLIN LLOYD, of New York, in the county and State of New York, have invented certain new and useful Improvements in Drying Apparatus, of which the following is a specification:

The said invention relates to the drying of grain, malt, fruit, and other similar material, by means of a revolving perforated vessel fitted with an internal guide, and placed in an inclined position within a drying-chamber. The perforated cylinder, or other vessel containing the material to be dried, fully exposes it to the current of air through the drying-chamber, so that moisture that may be separated from any portion is at once removed by the draft without being brought in contact with any other portion. The internal spiral or helical guide causes the material to traverse from one end of the revolving cylinder to the other, and keeps it in constant motion, turning over and over, as well as advancing in its course along the length of the drier, and the inclined position of the revolving drier increases the extent, and diversifies the character, of the motion of the material, and delivers it at a convenient height for any further operation that may be needed.

The perforated or open wire-work cylinder *a* is hung on journals, and inclosed in a chamber, *b*, to the lower part of which the current of drying air is admitted through the opening *c*, and from the upper part of which it escapes by the opening *d*, after passing through the cylinder and its contents. The hopper *e* incloses one end of the cylinder, so that the material in the hopper is seized by the spiral guide *f* extending through the length of the cylinder, and is transferred and delivered at the opposite end by its continuous revolution, with a rapidity dependent upon the inclination of the cylinder, and the angle of the spiral. The cylinder should not be rotated so rapidly as to cause the grain or other material to be held by the centrifugal force against the sides without advancing. The guide and the internal cylindrical axis separating the convolutions of the guide, may also be made of open material to facilitate the passage of the draft and the escape of the moisture. The material may be shifted back and forth in the cylinder, if necessary, by changing the direction of the revolutions, for as the rotary motion in one direction lifts and turns the material, and propels it forward and upward parallel with the inclined axis, the rotary motion in the opposite direction lets the material gradually fall, and turns it as it falls from the upper to the lower end of the cylinder.

It will be observed that the revolution of a screw within a cylinder, such as has been used or essayed for the elevation of water, is not applicable to the moving of grain, and any attempt to use it practically for such a purpose must result in jamming and crushing the material between the revolving screw and its inclosing-case. This part of my invention, therefore, is confined to the application of a guide fixed in the cylinder with which it revolves.

The essential features of the operation of my invention consist in exposing the material in a perforated vessel within which it may be turned and tossed in every direction, with a free escape of the moisture from every part.

I claim as my invention—

The grain-drier frame *b*, provided with air-passages *c d* and hopper *e*, in combination with perforated cylinder *a*, through which the current of air passes, and spiral conductor *f*, the said cylinder *a* and conductor *f* being in an inclined position in frame or box *b*, as shown and described.

MINNIE BUCKLIN LLOYD.

Witnesses:

A. T. DAVIE,

WM. KEMBLE HALL.