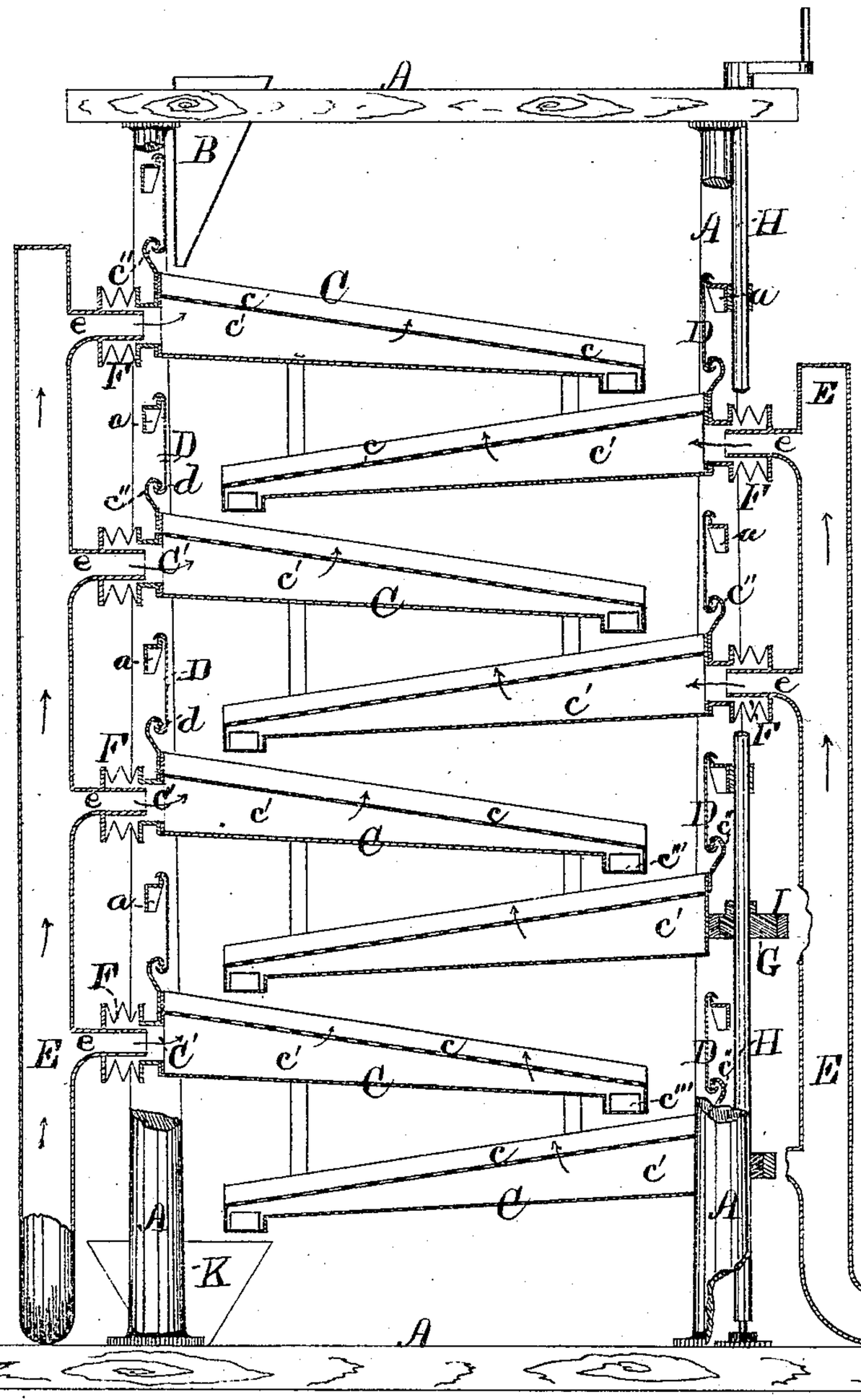
F. H. C. MEY.

Grain-Driers.

No. 153,592. Patented July 28, 1874.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FRED. H. C. MEY, OF BUFFALO, NEW YORK.

IMPROVEMENT IN GRAIN-DRIERS.

Specification forming part of Letters Patent No. **153,592**, dated July 28, 1874; application filed April 13, 1874.

To all whom it may concern:

Be it known that I, FRED. H. C. MEY, of Buffalo, in the county of Erie, and in the State of New York, have invented certain new and useful Improvements in Drying Apparatus for Malt, Grain, &c.; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which is shown a vertical central section of my apparatus.

The object of the present invention is to furnish an apparatus for drying wet grain, malt, &c., whereby the result shall be accomplished in a thorough, rapid, and most satisfactory manner; and to this end it consists in a drier provided with a series of inclined vibratory pans, the upper surfaces whereof are perforated, and the spaces beneath air-chambers suspended by means of plates with hooked ends, or hooks at their ends, so as to afford swinging supports, and constitute a shield or guard at each end of the said pans to prevent the overflow or spilling of grain, all as will be hereinafter more fully set forth; and it further consists in providing an expansible elastic or telescopic joint to form the connection between the air-conducting pipes and each of the pipes opening into the several compartments or chambers in the said pans; and it finally consists in the general detail of the construction, arrangement, and adaptation of the several parts of this drying apparatus, all as will be hereinafter more fully set forth.

A is a frame, which carries or supports the several portions of the apparatus, and which may be made of any desirable form, size, and manner, and from such materials as are usual or suitable for such purpose. B is a hopper, into and through which the grain or malt is fed down upon the upper end of the perforated surface *c* of pan C. All the pans of the series are of the same general shape and construction. Each one is made close at all its sides and upon the bottom, while there is set in the pan at a little distance from its top, and at a considerable incline from one end to the other, a perforated sheet or diaphragm, *c*, which constitutes the aforementioned surface or upper part or covering of the air-compartment *c'*. The outer end of this pan is considerably higher than the sides of the pan, and is so bent or curved for the entire width of its upper edge as to afford a hook, *c''*, to engage to and upon a like hook, *d*, of the guard D; or independent hooks or links may be attached to these edges, or any convenient and similar means of support may be used so long as they allow the parts to be easily detached, or to be capable of a vibratory motion, as in present instance. Each of the shields or guards D is supported in its turn, or suspended from a cross bar or beam, *a*, of the main frame A, or from a suitable support attached thereto. Each of the pans is provided at its lower end with a clean-out aperture, *c'''*. This is usually covered with a slide or hinged door, which can be readily opened when there is occasion to remove the dust or refuse material, which has sifted into the said air-compartment from the grain in its passage over the perforated surfaces above described.

In consequence of placing the perforated plate or diaphragm *c* below the edges of the pans, these edges constitute protection against the overflowing of the grain, malt, &c., at the sides of the pan. The several shelves of the drier may be connected to each other by bands or straps in such a way as to sustain and keep them all in position, care being had that these connections shall not be such as to interfere with the free vibratory motion of the pans; or the pans may be united in like manner in pairs, as, for instance, the first and second from the top may constitute one pair, the third and fourth another, and so on. Thus united they will be securely and strongly supported by the hooks or flexible attachments, or hooked guards, as aforesaid, at one end of first and the like means at the opposite end of the next pan. The number of these pans must be regulated by the needs of the size of the particular drier. They are so arranged that they project alternately from opposite sides toward the center of the drier, and by this manner of arrangement the grain, malt, &c., falling from the inner end of an upper pan drops upon the upper, outer, or highest end of the perforated surface of the pan below, and thence, when it reaches the inner end of this second pan it drops upon the highest part or outer end of the pan below, and in like manner through the

series until the main receptacle is reached at the bottom. Air, heated or cold, may be admitted to the compartment *c'* of the said pans from the air-ducts E, which are suitable pipes usually connecting with a blowing apparatus, wheel, or any like means for propelling a current of air. This air-supply may be hot air, or hot products of combustion, or simply cold air. Suitable connections to and with each air-compartment in the several pans are made, as at *e*. This pipe *e* is fitted and adapted to the opening C′ by means of the elastic expansible or telescopic joint F. One end of this connection is fitted or fastened in any suitable manner upon the pipe or nozzles *e*, and also in any convenient manner the other end can be secured to the projecting mouths C′, which form the opening to said air-compartments. The general object and purpose of making this joint so that it can be easily expanded or contracted are, that when the said shelves are vibrated there shall be no interruption or stoppage of the flow of the air, &c., from the pipes E, the said connection being made so as to allow all necessary or ordinary motions in this manner. This vibratory motion may be obtained by means of a cam, G, which is attached to the rod H, and is thereby revolved by means of any suitable power operating on said rod in the elliptical ring I, which is secured or attached to the outer end of one of the pans C; but the mere detail of obtaining this motion in this and various other manners are well known, and do not constitute any part of the present invention.

When the grain, malt, or other substance which has been carried over the several shelves reaches the end of the lower shelf it falls into any suitable or convenient receptacle, as at K, whence it can be elevated in the ordinary manner and again passed through the drier, or be taken away in a cured and usable condition.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. The vibratory pans C, having hooks *c''*, combined with guards D, in the manner and for the purposes set forth.

2. In a drier, substantially as described, the vibratory pans C having air-compartment *c'*, inclined perforated diaphragm *c*, and opening C′ at its outer end, as and for the purpose set forth.

3. The expansive joints or connections F attached to and combined with the vibratory pans C at opposite ends, in each series thereof, by means of the nozzles *e* of pipes E, and openings C′, as described and set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 10th day of April, 1874.

FRED. H. C. MEY.

Witnesses:
JOHN A. JOYCE,
J. L. G. DAVIS.