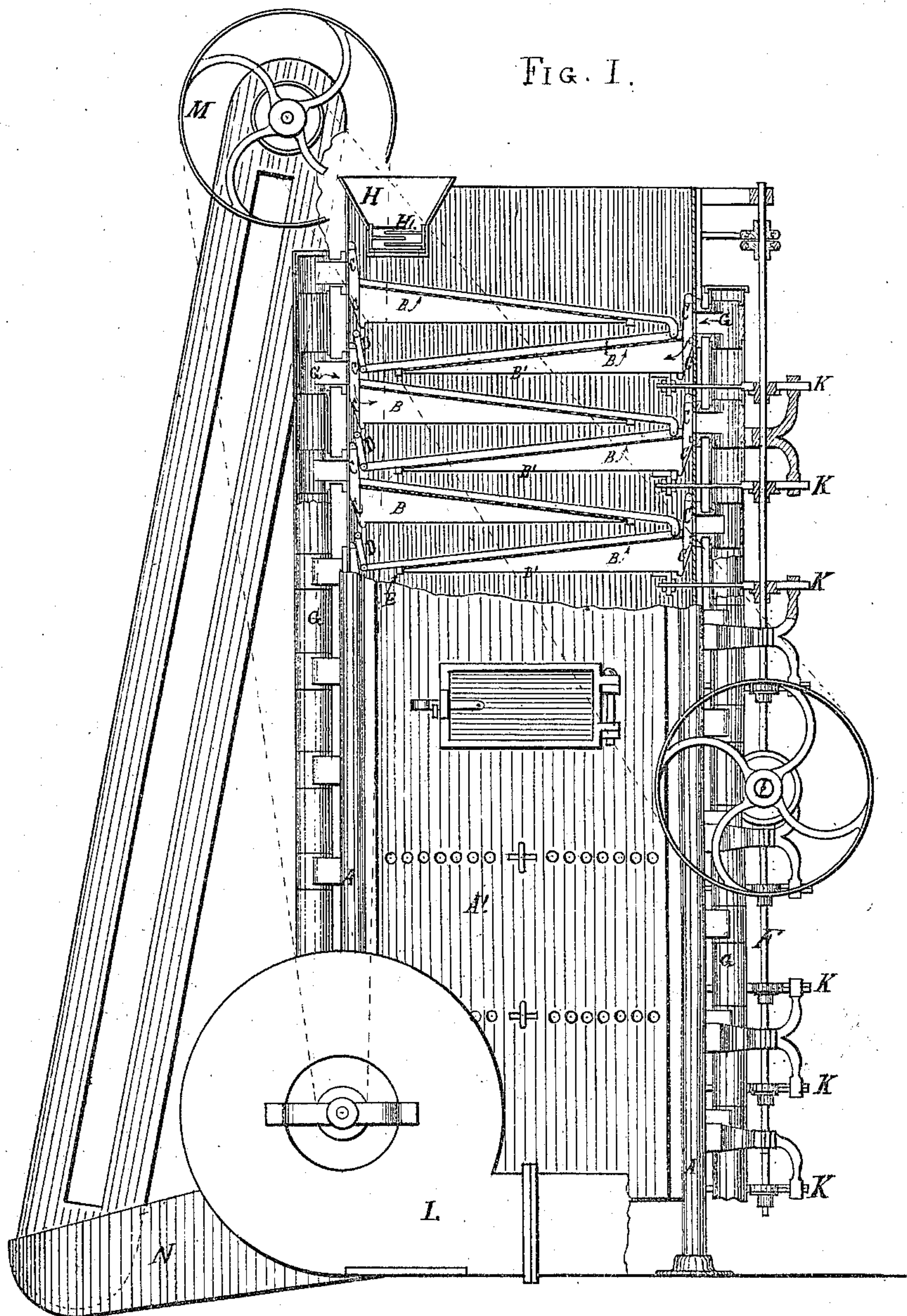


F. H. C. MEY & H. W. DOPP.

Grain-Drier.

No. 133,590.

Patented Dec. 3, 1872.



Witnesses:

Michael J. Stark
Philip B. Gosson

Inventors:

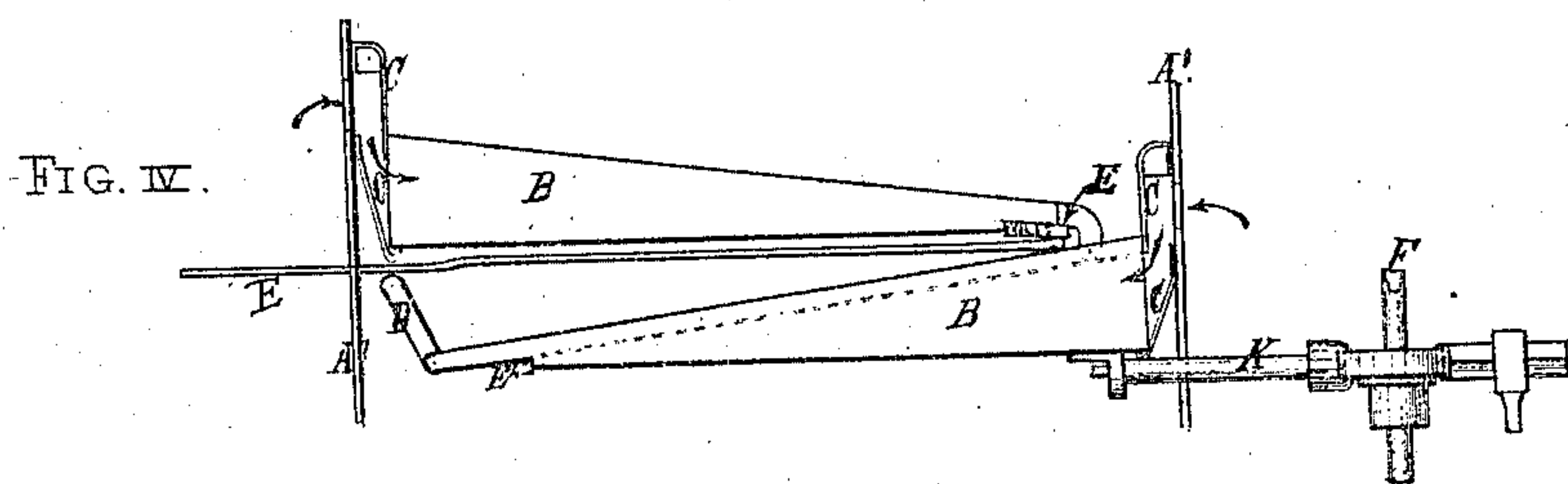
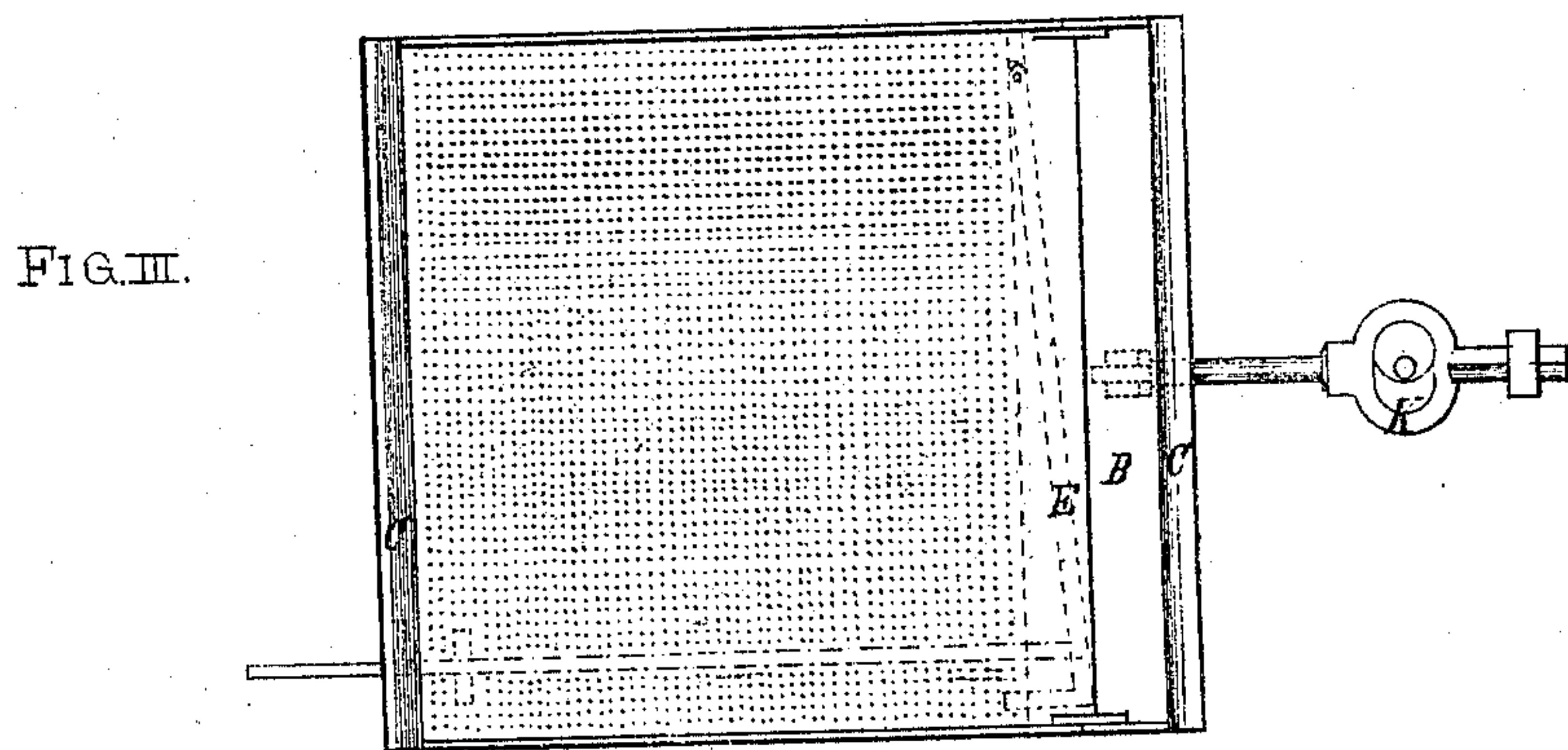
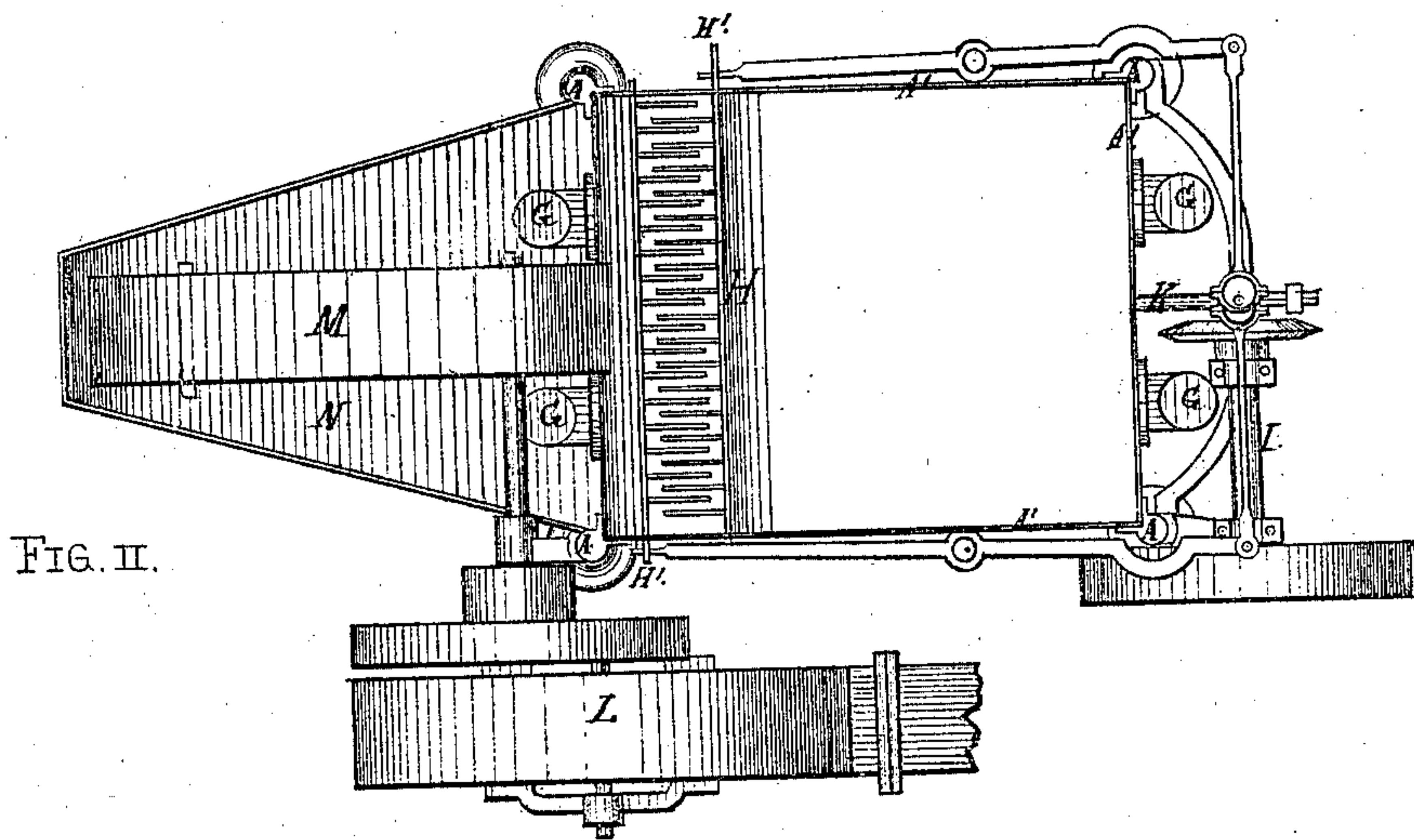
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UNITED STATES PATENT OFFICE.

FRED. H. C. MEY AND H. WILLIAM DOPP, OF BUFFALO, NEW YORK; SAID DOPP ASSIGNOR OF HIS RIGHT TO SAID MEY.

IMPROVEMENT IN GRAIN-DRIERS.

Specification forming part of Letters Patent No. 133,590, dated December 3, 1872.

To all whom it may concern:

Be it known that we, FRED. H. C. MEY and H. WILLIAM DOPP, jointly, both of the city of Buffalo, county of Erie and State of New York, have invented certain Improvements in Grain-Driers, of which the following is a specification:

The nature of our invention consists in the construction of a grain-drier provided with a number of inclined perforated tables or shelves suspended from uprights so arranged that the wet grain fed upon the top shelf or table will work or slide down from table to table until it has passed over all the tables and drops from the last table into a receiver, from which an elevator removes it for storage, &c., as soon as the tables are shaken. Furthermore, it is so arranged that if hot or cold air is blown through the apparatus it will absolutely have to pass through the perforated tables and the grain thereon from beneath. Also, in connection with the aforesaid arrangement, a spreader or separator, through which the wet grain, malt, or like has to pass before it reaches the first or top shelf or table of the series of perforated tables.

We refer to the annexed drawing, with letters of reference marked thereon, which illustrates our invention more fully and which makes part of this specification.

Figure 1, Plate I, is a sectional side elevation of our grain-drier. Fig. 2, Plate II, is a plan view of our apparatus. Fig. 3, Plate II, is a plan view of one set (two) of the perforated drying-tables provided with a yoke and eccentric, K, by means of which the tables B are shaken or operated. Each table is also provided with a shutter, E, which provides for getting rid of the screenings, &c., that collect in the cavity below perforated plates of tables B. Fig. 4, Plate II, is a side view of tables B B, shown in Fig. 3. It illustrates the mode of suspending said tables, &c.

A A A A are four pillars or uprights, which constitute the main support for all the perforated tables, the mechanism for shaking or operating the same, the air-conducting pipes, the spreader or separator, &c.; in fact, the whole apparatus, as to its various parts, is carried or supported by said pillars. B B is a series of perforated tables suspended mainly

from pillars A. The surface of perforation on which the grain or malt to be dried or cooled, as the case may be, is on an incline, so as to cause the grain, &c., to slide or work down from table to table as soon as tables B are operated (shaken) by means of yokes and eccentrics K K. Said tables are connected together two and two so that one yoke and eccentric will operate two tables. They are suspended one above another, as seen in Fig. 1. Each of the tables B is provided with a bottom and sides, B', of sheet metal, so as to form a tapering box-like cavity beneath the perforation. Both ends (ends where suspended) of said cavity are open, the purpose of which will hereafter be shown. B B are also provided at C C each with two strips of thin sheet-brass equal in length to the whole width of tables B. The tables are suspended by means of this sheet-brass, which is flexible so as to allow tables B to swing back and forth whenever F and K are set in motion. The lower table of each set is suspended at one end by two links, D, as seen in Fig. 1 and Fig. 4. The main object of suspending tables B, by means of flexible sheet-brass or like running across the whole width of tables B, is to enable cold or hot air (as the case may be) to be blown directly through the perforated tables B and the grain thereon. The tables B and their suspenders C C fit closely within the inclosing shell or frame A' of the tables B. A direct and perfect communication between air-conducting pipes G and tapering box-like cavities beneath the perforated surface of tables B is obtained. (See Fig. 1 and Fig. 4.) E is a shutter (one for each table) arranged to open or shut the tapering base-like cavity of B, where it terminates in a narrow slot opening, as seen in Fig. 3 and Fig. 4. Said shutters have to be opened from time to time in order to blow the screenings or dust collected beneath the perforated tables out of said base-like cavity. Said shutters are operated by means of rods E', which extend through the inclosing shell or frame A'. F is an upright shaft provided with a number of eccentrics, the upper two of which give motion to the spreader or separator H. (See Fig. 2.) The rest of the eccentrics give a shaking motion to tables B. F is further provided with a bevel-gear, by means

of which it receives motion from main shaft I. G are the air-conducting pipes, through which hot or cold air is blown, as required, by means of blower or blowers L. From G the air is conducted through branches into tables B right beneath and through the perforation and grain lying thereon into the inclosing-shell A', from where it finally escapes through a series of registers in A', as seen in Fig. 1. H is the hopper, into which the elevator delivers the grain that is to be passed over the tables B, (either for cooling or drying.) Within said hopper are arranged two bars, H', each provided with a series of fingers. The bars H' are placed opposite each other, with their fingers arranged so that they can pass one another, leaving room for grain to pass through easily. The bottom of hopper H is provided with holes so as to answer for a register to control the feeding to tables B. Bars H' move in opposite direction with respect to each other. Motion is transferred to H' from shaft F by means of eccentrics and levers, as seen in Fig. 2. The object of the spreader or separator is to produce a uniform feed of grain over the whole width of top table B, and to break up and separate any grain or malt that may have formed into lumps. I is the main shaft. Motion is transferred from this shaft to shaft F, elevator M, and blower L, as indicated in Fig. 1. I may receive its motion from any motor. N is the receiver, which the grain reaches after passing through the apparatus. From this receiver it may be elevated for again passing through the drier, or else it may be taken away for storage. Now, be it observed that it is a mere matter of choice that tables B are moved (shaken) rectilinearly with the inclination of perforated surface of tables B. The whole (suspending and operating the tables B) might just as well be reversed, and still the same result would be obtained.

In referring to the operation of the afore-described apparatus a few words will suffice to show how to proceed. In order to dry wet grain the air to be blown through the apparatus must pass through a heater before reaching into pipes G, so as to become well heated. The grain is to be delivered into hopper H, from where it will pass over the tables B when the apparatus is in motion.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In the construction of a grain-drier, the series of vibrating inclined perforated tables B, suspended by means of flexible sheet metal running across the whole width of the tables, instead of hinges, chains, or the like, as set forth.

2. The inclined vibrating suspended perforated tables B, constructed with a cavity of box-like shape vibrating with B by means of B', and so arranged as to form a conduit between conducting-pipes G and beneath and through the perforations of tables B, (B and B' constituting one table,) as and for the purpose specified.

3. The vibrating inclined perforated tables B B', suspended by means of flexible sheet metal or equivalent, when used as a means to form a conduit between the conducting-pipes G and the cavity below the perforations of tables B when in motion, as set forth.

4. In combination with a grain-drier, the spreader or separator H, arranged and provided with bars and fingers H' to operate as and for the purpose set forth.

FRED. H. C. MEY.
H. WILLIAM DOPP.

Witnesses:

MICHAEL J. STARK,
PHILIP W. GLEASON.