

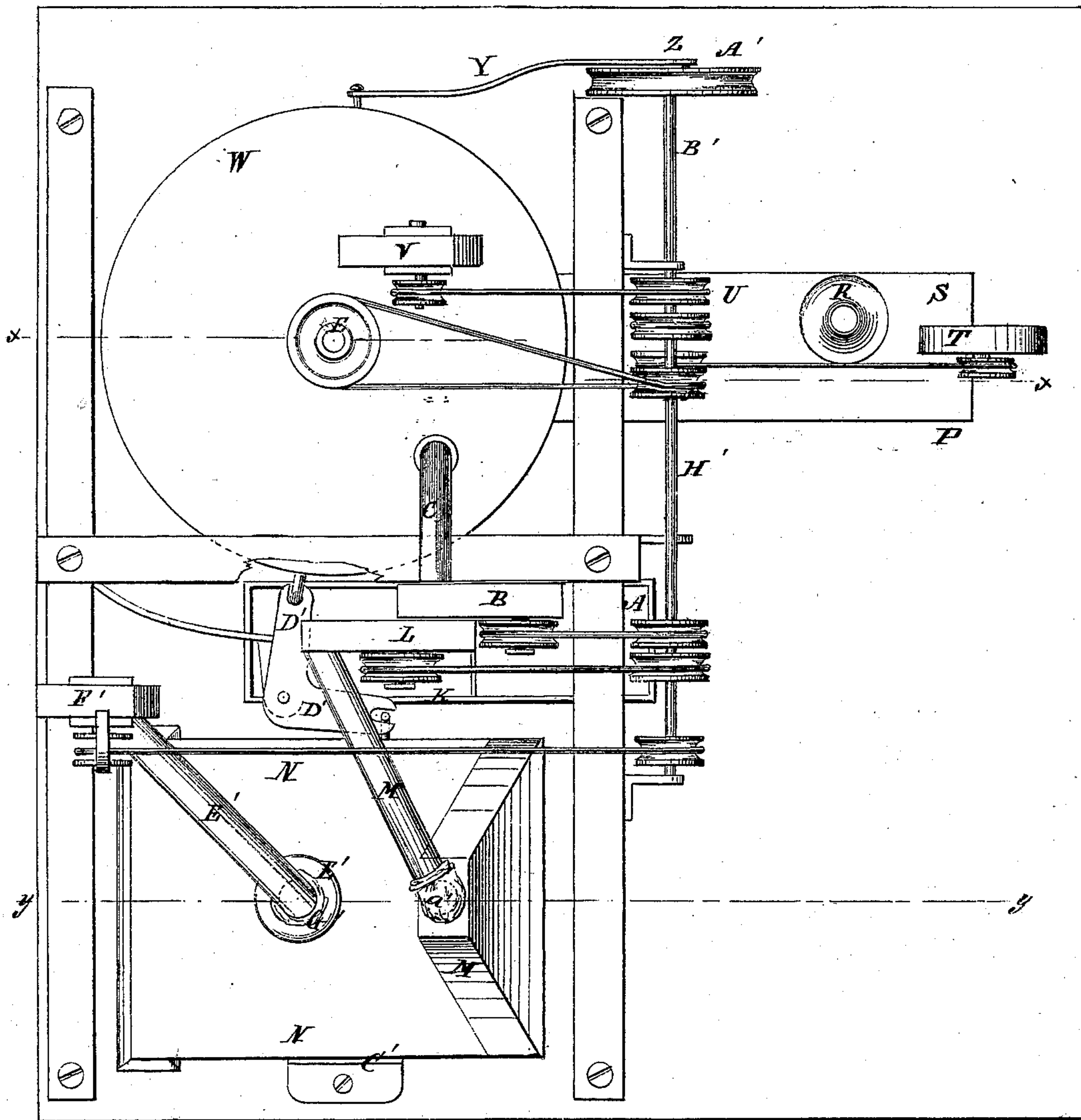
F. H. C. MEY.

Improvement in Grain-Driers.

No. 127,256.

Patented May 28, 1872.

Fig. 1.



Witnesses:

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Geo. W. Mabey

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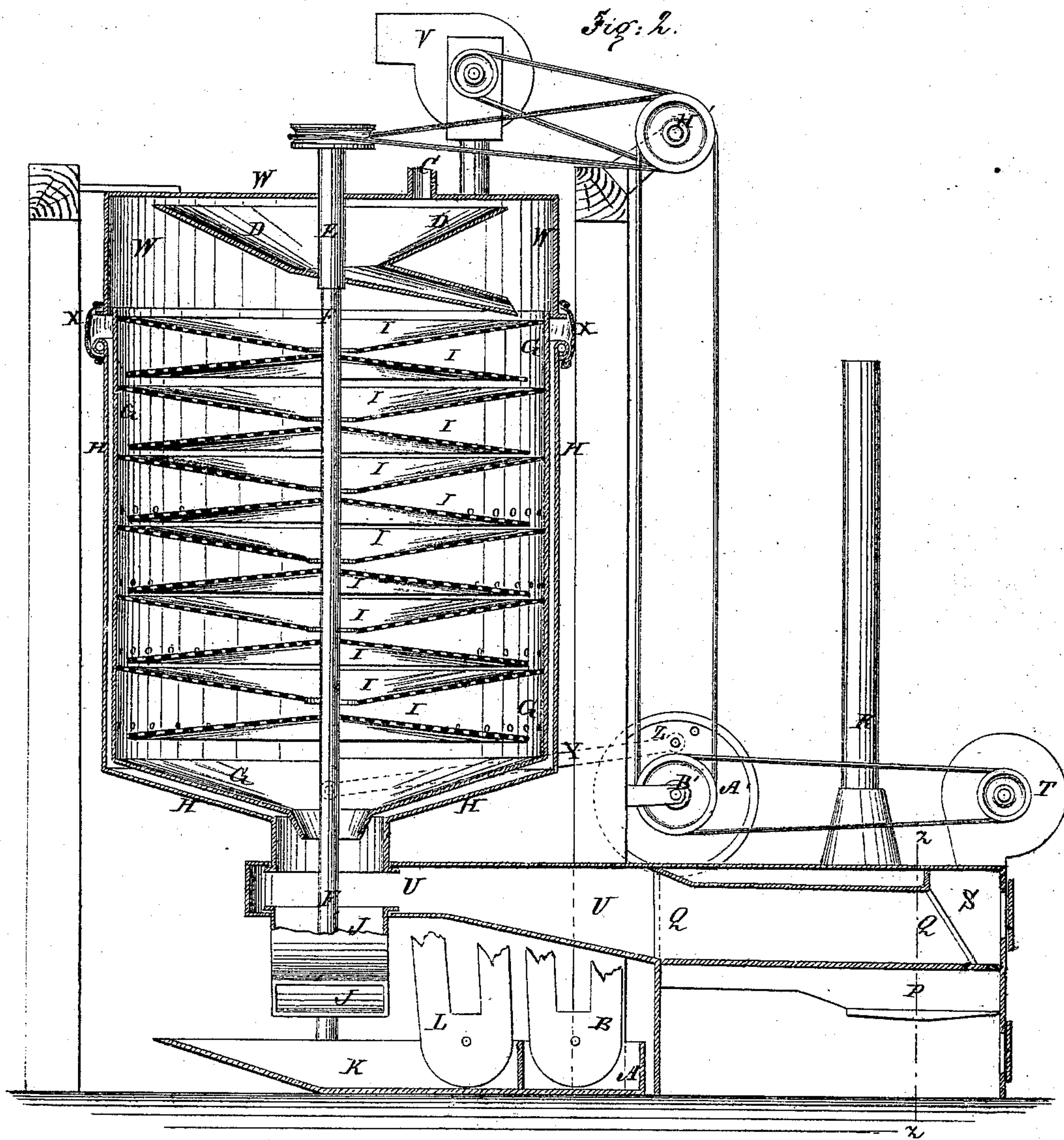
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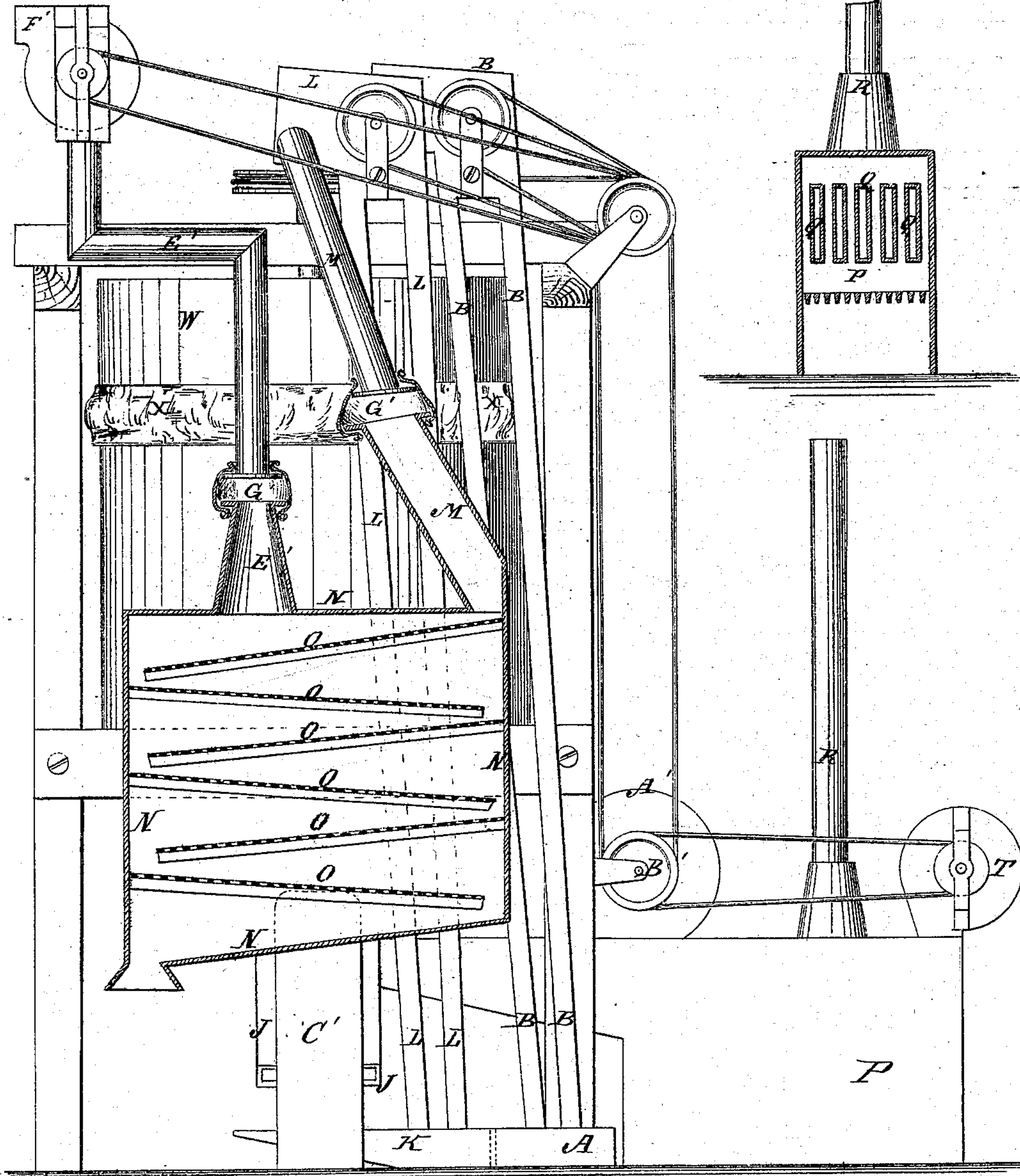
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Fig: 3

Fig: 4.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN GRAIN-DRIERS.

Specification forming part of Letters Patent No. 127,256, dated May 28, 1872.

Specification describing a new and Improved Grain-Drying Apparatus, invented by FREDERICK H. C. MEY, of Buffalo, in the county of Erie and State of New York.

Figure 1, Sheet 1, is a top view of my improved apparatus. Fig. 2, Sheet 2, is a detail vertical section of the same taken through the line *x x*, Fig. 1. Fig. 3, Sheet 3, is a detail vertical section of the same taken through the line *y y*, Fig. 1. Fig. 4, Sheet 3, is a detail vertical sectional view of the furnace taken through the line *z z*, Fig. 2.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish an improved apparatus for drying grain, which will take the wet grain, dry it by the application of hot air in such a way that it cannot burn or scorch it, and will then cool it by the application of cold air, delivering the grain dry and cool, ready for storage or shipment; and it consists in the construction and combination of various parts of the apparatus, as hereinafter more fully described.

A represents the receiver or trough, into which the wet grain is introduced, and from which it is taken by the elevator B and thence discharged through the spout C into the revolving hopper D, which is attached to the sleeve E, that revolves upon the upper end of the shaft F, which supports the cylindrical drier-case G. The lower part of the drier-case G is perforated with numerous small holes, and is incased with a jacket, H, forming a hot-air space. The interior of the drier-case G is provided with plates I, alternately concave and convex upon their upper sides, and which are perforated with numerous small holes to allow the hot air to pass up freely. The concaved inclined plates I are secured at their outer edges to the case G, and have holes or openings in their centers, through which the shaft F passes, and which are made larger than the said shaft, so that the grain may flow through to the next plate. The convex inclined plates I are attached at their centers to the shaft F, and are made a little smaller than the interior diameter of the case G to leave a space around their outer edges, through which the grain passes to the next plate. The bottom of the case G is made funnel-shaped and has an opening in its center, through which the grain pass-

es into the spout J, by which it is conducted into the trough, bin, or receiver K. The grain is taken from the bin K by the elevator L, from which it is discharged through the conduit or spout M into the case N, the interior of which is occupied by a series of perforated plates, O, inclined alternately in opposite directions. The plates O are attached at their upper and side edges to the walls of the case N, and their lower edges are at a little distance from the wall of said case, to form a space for the passage of the grain from the lower edge of one plate to the upper part of the next lower plate. The bottom of the case N is made inclined and with an opening in its lower part, through which the grain passes into any desired receiver.

The grain, while passing through the drier G, is exposed, during all the time of its passage through said drier, to the heating and drying action of a current of hot air passing up through the perforations and openings of the plates I, and in through the perforations in the sides of the lower part of the case G.

P is the furnace, the smoke and other gaseous products of combustion from which pass up through the spaces between the series of flattened pipes Q, and escape through the smoke-flue R. The forward ends of the pipes Q open into the chamber S, into which a current of air is forced by the fan-blower T. The rear ends of the pipes Q open into the chamber U, from which the air, heated during its passage through the pipes Q, passes into the drier G. The air is drawn from the drier G, carrying with it the vapors withdrawn from the grain by the exhaust or suction blower V. The grain is thus delivered into the receiver K hot and dry. W is a cap or bonnet, covering the rotary hopper D and the upper part of the case G, to confine the air, and which is connected with the upper edge of the case G by a curtain or other flexible connection, X, which prevents the escape of the hot air, and at the same time allows the drier-case G to have a free movement upon the bonnet W. The bonnet W is stationary, and is connected with and supported by the frame-work of the machine. The case G is agitated while the grain is passing through it by the connecting-rod Y, one end of which is pivoted to the lower part of the side of the drier. The outer end

of the connecting-rod Y is pivoted to a crank-pin, Z, attached to the driving-pulley A', or to another pulley or crank attached to the driving-shaft B', which is driven from any convenient power. The crank-pin Z is made adjustable, so that by moving it from or toward the axis of the shaft less or more motion may be given to the drier, according as it may be necessary to have the grain pass slower or faster through said drier. The cooler N is supported upon springs C', and to its side is pivoted the end of a lever, D', the middle part of which is pivoted to the frame-work of the machine, or to some other suitable support, and its other end is pivoted to the side of the drier G, so that the movement of the drier G will agitate the cooler N.

The grain, while passing through the cooler N, is exposed to a blast of cold air, which enters through the opening in the bottom of said cooler, and is drawn or exhausted through it, and through the pipe E', by the suction or exhaust blower F'.

The pipes M and E' are each made in two parts, connected by a flexible connection or curtain, G', so that the upper parts of said pipes M E' may be stationary while their lower parts move with said cooler N.

The elevators B L, the fan-blowers V F', and the rotary hopper D are all driven from the counter-shaft H', which shaft H' is driven from the driving-shaft B' by a band and pul-

leys, as shown in Figs. 1, 2, and 3. The fan-blower T is driven from the driving-shaft B' by a band and pulleys, as shown in Figs. 1, 2, and 3.

By this apparatus the grain is delivered from the cooler N dry and cool, and ready for storage or shipment.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the flattened air-heating pipes Q and air-chambers S and U with a furnace, P, fan-blower T, and grain-drier G H I, substantially as herein shown and described, and for the purpose set forth.

2. The cylindrical vibrating drier G, perforated inclined plates I, jacket H, revolving hopper D, bonnet W, and flexible connection X, in combination with each other, for the purpose of exposing the grain to a blast of hot air, substantially as herein shown and described.

3. The combination of the furnace P, air pipes and chambers Q S U, drier G H I, bonnet W, revolving hopper D, elevators B L, cooler N O, and fan-blowers V F', substantially as herein shown and described, and for the purpose set forth.

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Witnesses:

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