

(No Model.)

2 Sheets—Sheet 1.

J. KAM.
DRY KILN FOR MALTING.

No. 450,237.

Patented Apr. 14, 1891.

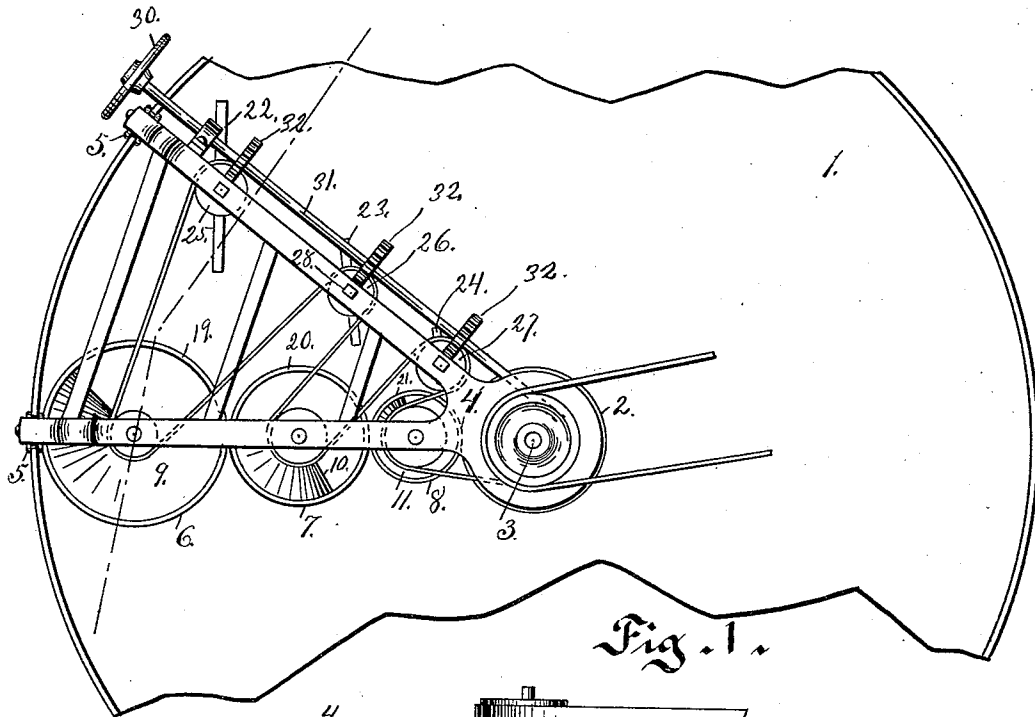


Fig. 1.

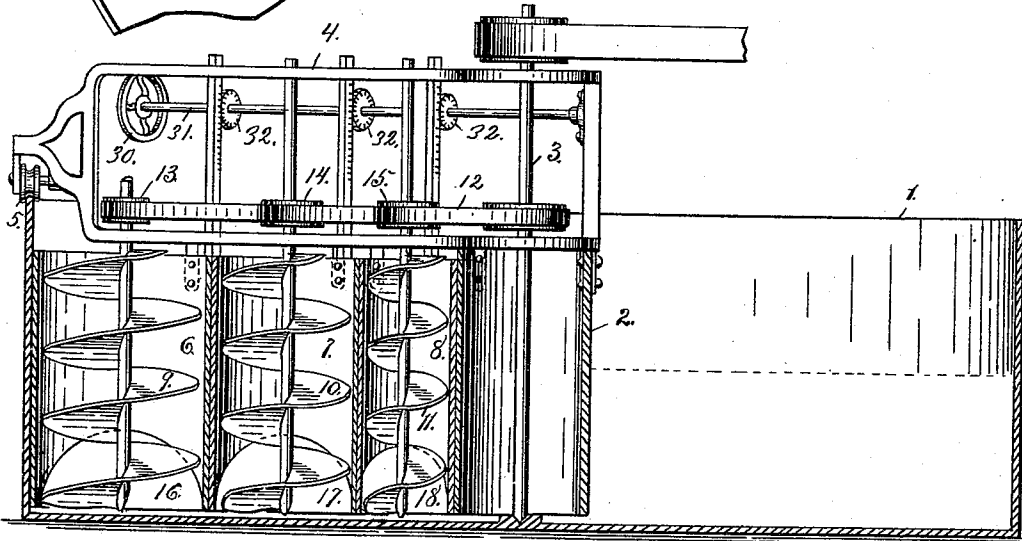


Fig. 2.

WITNESSES:

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W. H. Hoddick

INVENTOR

Joseph Kam
BY W. T. Miller

ATTORNEY

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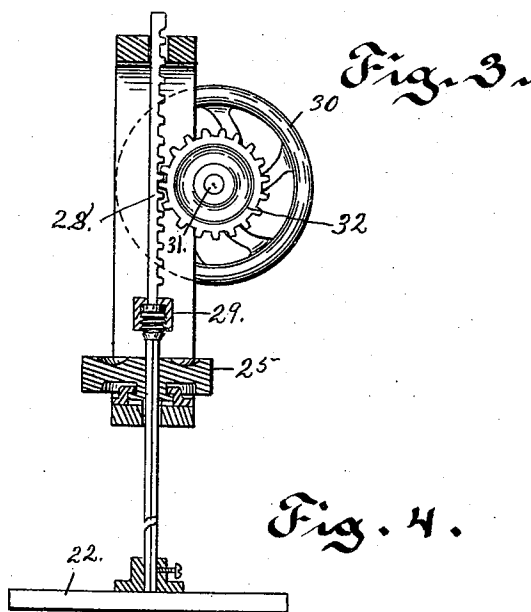
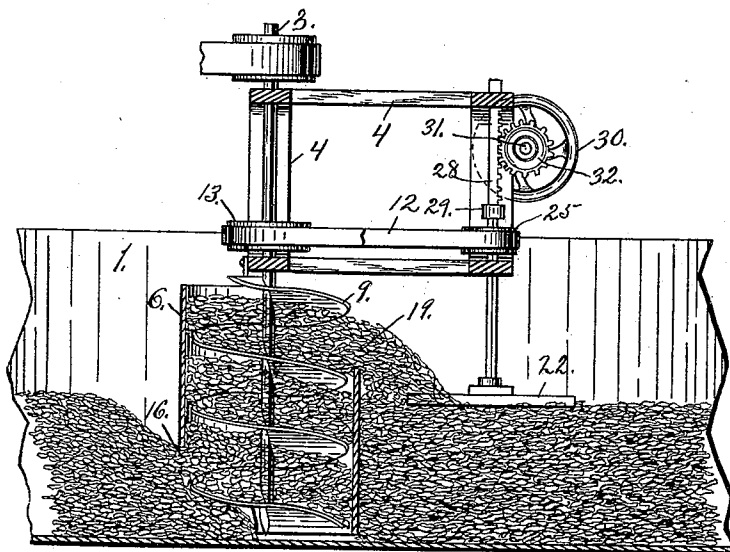


Fig. 4.

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M. W. Goddick

INVENTOR

Joseph Kam
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UNITED STATES PATENT OFFICE.

JOSEPH KAM, OF BUFFALO, NEW YORK.

DRY-KILN FOR MALTING.

SPECIFICATION forming part of Letters Patent No. 450,237, dated April 14, 1891.

Application filed September 27, 1890. Serial No. 366,321. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH KAM, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Dry-Kilns for Malting; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in grain-kilns, and more particularly to that class of grain-kilns employed in the process of malting, in which the grain to be dried is placed in the kiln to a depth of one and one-half to two feet.

This invention has been arranged so as to adapt it to a round kiln.

Heretofore it has been the custom to shovel the grain in the kiln, thereby turning it so as to expedite its drying.

The object of my present invention is to avoid this hand manipulation; and it consists, broadly, of a series of vertical screw conveyers operating within jackets or cylinders, through which the grain passes from the bottom to the top, thus thoroughly turning and exposing it.

My invention further consists in other details of its construction, all of which I will now proceed to definitely describe and claim.

In the drawings, Figure 1 is a top plan view of a kiln equipped with my improvement. Fig. 2 is a central section of the same with partitions broken away to show construction. Fig. 3 is a detail view taken through the line *xx* of Fig. 1. Fig. 4 is a detail view of one of the adjustable leveling-arms.

Referring to the drawings, 1 is the circular kiln or tank in which the grain to be dried is placed.

2 is a drum centrally located and encircling the main shaft 3. To this shaft 3 is secured the frame 4, the outer end of this frame resting on rollers 5, which travel along the upper edge of the kiln or tank 1. At the forward end of the frame 4 and depending from it are the drums or cylinders 6, 7, and 8. Within these cylinders are arranged the endless con-

veyers 9, 10, and 11, which are operated by the endless belt 12, passing over the pulleys 13 14 15. As many of these cylinders are employed as is found essential to span the space from the cylinder 2 to the outer wall of the kiln or tank 1 when arranged as shown in the drawings.

It will be seen that the cylinders 6, 7, and 8 are of different diameters. The outer cylinder, being the largest, has the most stock to convey. This object might also be attained by varying the speed of the conveyers.

At the lower forward end of the cylinders 6, 7, and 8 are the openings 16, 17, and 18, into which the grain passes as the frame 4 and the cylinders travel within the kiln or tank. The grain on entering the openings 16, 17, and 18 is carried up in the cylinders by the conveyers 9, 10, and 11 and discharged through the openings 19, 20, and 21. To the rear of the frame 4 I have arranged the adjustable leveling-arms 22, 23, and 24. These arms are secured to square shafts or rods which pass up through the pulleys 25, 26, and 27 and frame 4. These rods are held in place by the toothed bars or rack 28, being secured thereto by the swivel-nuts 29. (See Fig. 4.) The elevation of these leveling-arms is regulated by the hand-wheel 30, which is mounted on the shaft 31, the toothed bars intermeshing with gear or sprocket wheels 32, which are also mounted on the shaft 31. The object of these leveling-arms is to level the surface of the grain in the kiln as it leaves the cylinders.

I claim—

1. In a dry-kiln for malting and other purposes, a grain-turner consisting, essentially, of two or more conveyers connected by a belt or chain and operating within vertical chambers having openings at their lower forward ends and upper rear ends, the whole being made to travel within a kiln or compartment, substantially as shown and described.

2. A dry-kiln for malting and other purposes, consisting, essentially, of a tank for the reception of the stock, a series of vertical cylinders secured to a moving frame and extending from the center to the side wall of said tank, said cylinders having openings at their lower forward ends and upper rear ends, and a series of endless conveyers connected by an endless belt, being mounted in the moving

frame, substantially as and for the purpose stated.

3. A dry-kiln for malting and other purposes, consisting, essentially, of a tank for the
5 reception of the stock, a series of graduated vertical cylinders secured to a moving frame and having openings at their lower forward ends and upper rear ends, a series of endless conveyers mounted in the moving frame and
10 operating within said cylinders, and a series of adjustable revolving leveling-arms mounted

within said frame and adapted to be raised and lowered, said leveling-arms and endless conveyers being connected by an endless belt or chain, substantially as shown. 15

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH KAM.

Witnesses:

OTTO E. HODDICK,
ROBT. P. WIGHTMAN.