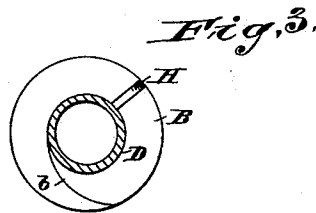
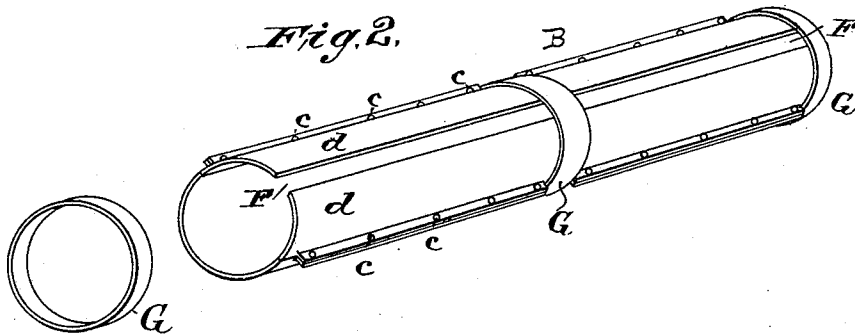
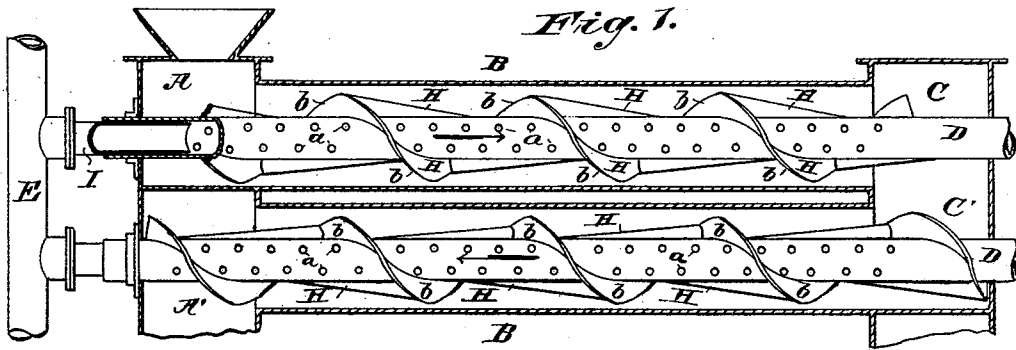


(No Model.)

E. M. PARKER.
CONVEYER FOR GRAIN DRIERS.

No. 481,672.

Patented Aug. 30, 1892.



Attest;
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UNITED STATES PATENT OFFICE.

EDWARD M. PARKER, OF NEW YORK, N. Y.

CONVEYER FOR GRAIN-DRIERS.

SPECIFICATION forming part of Letters Patent No. 481,672, dated August 30, 1892.

Application filed June 27, 1891. Serial No. 397,729. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. PARKER, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Conveyers for Grain-Driers, of which the following is a specification.

My invention relates to that class of grain-driers or apparatus for drying brewers' grains and similar substances in which the grain is fed continuously through a series of cylindrical pipes called "conveyers," and provided with a feeding-screw, by which the grain received at one end of the conveyer is fed forward to the other end, where it drops to the next succeeding cylinder, and so on.

Many forms of such conveyers are now in use, the successive cylinders sometimes arranged one above the other vertically and sometimes arranged in a nearly-horizontal series, and many different constructions of the feed-screw, the cylinder itself, the means for operating the same, and heating and cooling the cylinders are well known.

My invention consists in improvements made in the construction of the conveyer whereby the hot blast is received with less tendency to overheat the bearing on which the conveyer turns and is made to permeate the grain more thoroughly than has heretofore been the case.

In the accompanying drawings, Figure 1 represents two such conveyers arranged one above the other, the means for operating said conveyer and the rest of the series not being shown, as many well-known forms of arranging and operating the same will readily suggest themselves. Fig. 2 shows the cylinder-shell as constructed in my improved manner, one of the bands being slipped off of the end. Fig. 3 is a cross-section of the feed-screw.

Same letters indicate similar parts in the different figures.

A is the box at the top of the apparatus, into which the grain is first fed.

B represents the cylinders, open at both ends, one end communicating with one of the boxes of the series AA' and the other end communicating with one of the series of boxes C C', so that when the grain is fed through the conveyer B into C it drops upon the conveying-shaft at C', by which it is fed back to the

box A', when it drops into the next box and conveyer, and so on.

Each cylinder is provided with the hollow perforated shaft D, into which the hot blast is admitted from the pipe E, and from which it passes through the perforations *a* into the grain surrounding said shaft and escapes through the open top F, Fig. 2, into the surrounding air.

The hollow shafts D are provided with the feeding-threads *b*, by means of which the grain is fed through the cylinder from end to end in the usual way, the motion being reversed in each alternate cylinder.

Thus far there is nothing new in the above-described apparatus; and my improved invention consists, in a conveyer for grain-driers, in the combination of a hollow perforated shaft, a screw-thread extending spirally around said perforated shaft, and a series of tapering paddles set into said perforated shaft at right angles to the screw-head.

The necessity of the paddles H arises from the fact that the grain seeks to remain at the bottom of the conveyer, and hence the perforations *a* on the upper portion of the perforated shaft D frequently becomes exposed and waste a corresponding quantity of the hot blast, which in said case passes out of the conveyer through the slot F without having had any effect upon the grain which lay entirely below it. The paddle corrects this difficulty because being set practically at right angles to the perforated shaft, as shown in Fig. 3, it serves as a scoop to lift up the grain from the bottom of the conveyer as the shaft revolves and spreads it over the top of the perforated shaft, thus keeping it constantly covered.

Many forms of this paddle might be adopted; but I have found the better form to be one which tapers gradually from a point near the edge of the screw-thread down to the surface of the perforated shaft, as shown in Fig. 1.

Although I have shown two of the paddles between each spiral of the screw, I have found that for ordinary purposes a single paddle for each spiral is sufficient.

The object of the pipe I for carrying the hot blast into the perforated shaft D, as shown in Fig. 1, beyond the bearing on which the said shaft turns will be readily appreciated

by all who have had experience with hot journal-boxes, and it is preferable to construct this pipe I slightly tapering, so that the joint may be more perfect and that the bearing
5 may be somewhat cooled by the tendency of the air immediately surrounding the smaller end of the pipe I to become rarefied.

The purpose of constructing the conveyer in separate pieces held together by the bands
10 G is to facilitate the taking apart of the conveyer, for cleaning the same or to repair the conveying-shaft, the screw of which is more or less liable to break if the conveyer becomes clogged. By removing one or more of the
15 clamps G the first plate d can be taken off without disturbing the rest of the conveyer, and

thus the delays and disadvantages accompanying the removal of the conveyer itself are done away.

I claim—

In a conveyer for grain-driers, the combination of a hollow perforated shaft, a screw-thread extending spirally around said perforated shaft, and a series of tapering paddles set into said perforated shaft at right angles
20 to the screw-thread, substantially as shown, and for the purposes specified. 25

EDWARD M. PARKER. [L. S.]

Witnesses:

M. F. RANDOLPH,
W. P. PREBLE, Jr.