

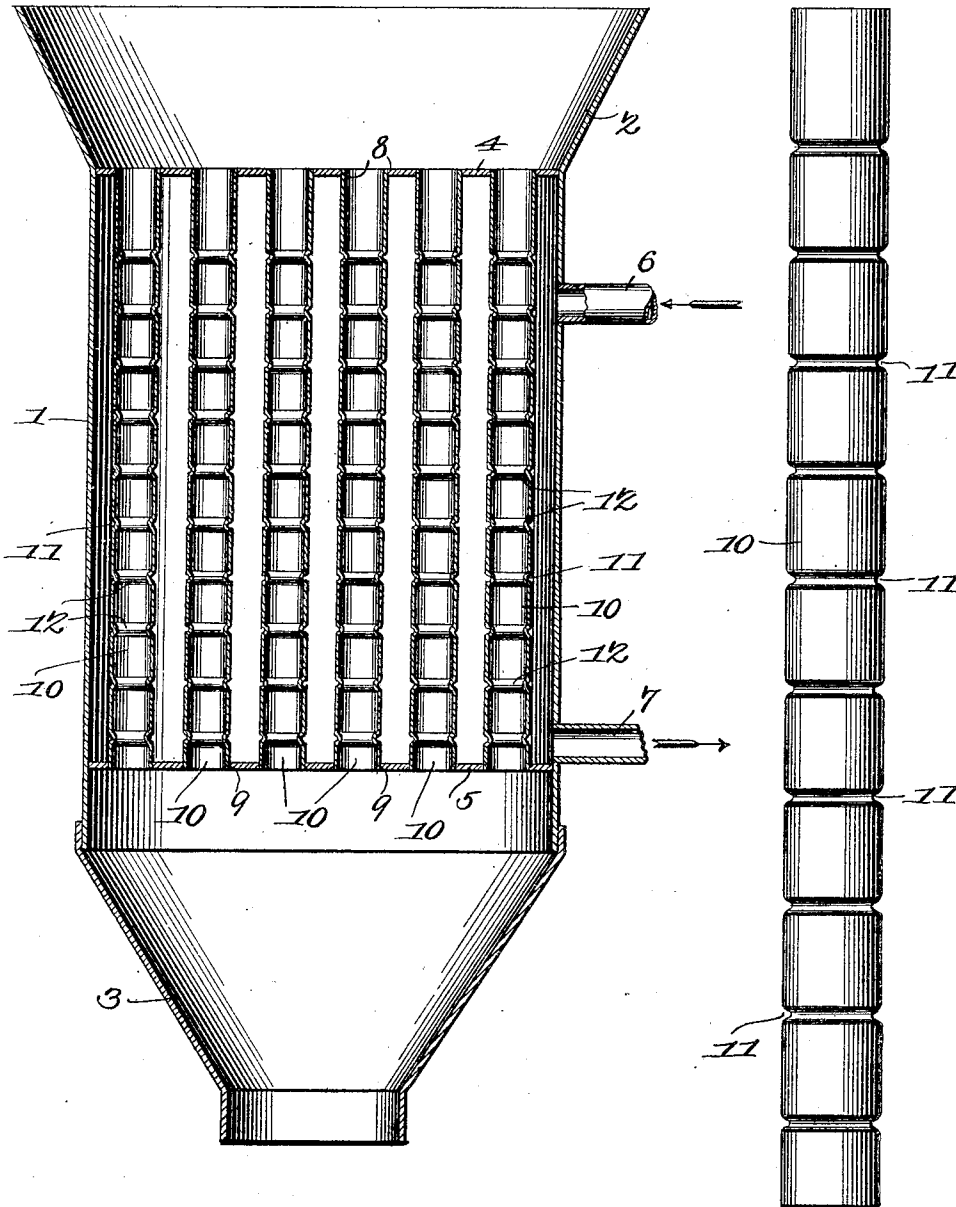
No. 804,977.

PATENTED NOV. 21, 1905.

P. PROVOST.
GRAIN HEATER AND DRIER.
APPLICATION FILED JUNE 26, 1905.

Fig. 1.

Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

PETER PROVOST, OF MENOMINEE, MICHIGAN.

GRAIN HEATER AND DRIER.

No. 804,977.

Specification of Letters Patent.

Patented Nov. 21, 1905.

Application filed June 26, 1905. Serial No. 266,999.

To all whom it may concern:

Be it known that I, PETER PROVOST, a citizen of the United States, residing at Menominee, in the county of Menominee and State of Michigan, have invented a new and useful Grain Heater and Drier, of which the following is a specification.

This invention relates to devices for heating and drying grain of that type in which a plurality of grain-passages extend through a casing or chamber, in which latter a circulation of live steam is maintained for the purpose of heating the grain-passages, and thus heating and drying the grain passing there-through.

The present invention has for its object to provide improved grain-passages of a peculiar construction which has in practice been found sufficient for the purpose of agitating and overturning the grains passing there-through, to the end that said grains shall be thoroughly and uniformly exposed to the heating and drying action which results from contact with the walls of the passages.

Another object is to simplify the construction of the tubular members serving as grain-passages.

Further objects are to promote the simplicity of construction and the durability and efficiency of the device as a whole.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claim.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that changes and modifications within the scope of the invention may be resorted to when desired.

In said drawings, Figure 1 is a vertical sectional view of a grain heater and drier constructed in accordance with the principles of the invention. Fig. 2 is a side elevation of one of the tubular grain-passages.

Corresponding parts in both figures are indicated throughout by similar characters of reference.

In the form of the invention herein illustrated, 1 designates a cylindrical casing having at its upper end an expanded or funnel-shaped inlet 2, the lower end of said casing being provided with a downwardly-contracted discharge-funnel 3. The casing is provided near

its upper and lower ends with diaphragms 4 5, the space between which constitutes a live-steam chamber having an inlet 6 and an outlet 7, through which circulation of steam may be maintained in any convenient manner, valves being usually provided for the purpose of regulating the flow of steam, said valves being, however, not shown.

The diaphragms 4 and 5 are provided with apertures 8 9, which are connected by tightly-fitting pipes or tubes 10, of which any desired number may be used, said tubes being placed moderately close together. These tubes constitute the grain-passages, and their upper and lower ends are securely connected with the diaphragms in such a manner as to preclude all possibility of leakage of steam. The pipes or tubes 10 are preferably made of drawn metal, such as brass or copper, and of any suitable dimensions. Each of said tubes is provided at suitable intervals with annular grooves or indentations 11, whereby the metal is upset inwardly, so as to form internal annular ribs or hoops 12, which act in the nature of obstructions to the passage of grain through the said tubes or passages. As will be seen, each of the tubular passages may thus be described as being made up of a plurality of cylindrical chambers having constricted lower ends, whereby the flow of grain will not only be interrupted, but the grain will be agitated and the individual grains will be overturned by the passage through the succession of chambers; so that practically the entire surface of each grain will be exposed to the heating and drying influences resulting from direct contact with the walls of the tubes or passages.

The construction of this improved grain heater and drier is, as will be seen, extremely simple, and practical experience has proven it to be thoroughly efficient for the purposes for which it is designed.

The operation of the device is well understood, and it consists in simply causing the grain which is to be operated upon to flow through the tubes or passages while live steam circulates through the steam-chamber, the temperature being obviously capable of regulation by well-known means, which have, however, not been shown. It may also be found desirable to provide the casing with valves for the purpose of regulating the flow of the grain; but such valves do not form a part of the present invention, and they have not been shown in the drawings.

Having thus described the invention, what is claimed is—

5 In a heater and drier, a casing having means for the circulation therethrough of live steam, said casing being provided with apertured diaphragms, in combination with seamless metallic tubes connecting the apertures and securely connected with the diaphragms, said tubes being provided with exterior annular in-

dentations forming interior annular ribs or hoops.

In testimony that I claim the foregoing as my own I have hereto affixed by signature in the presence of two witnesses.

PETER PROVOST.

Witnesses:

CHAS. L. BORST,

EDMOND VERSTRAETE.