(No Model.)

A. WASSMUND.

GRAIN HEATER.

No. 408,556. Patented Aug. 6, 1889.

Fig. 1.

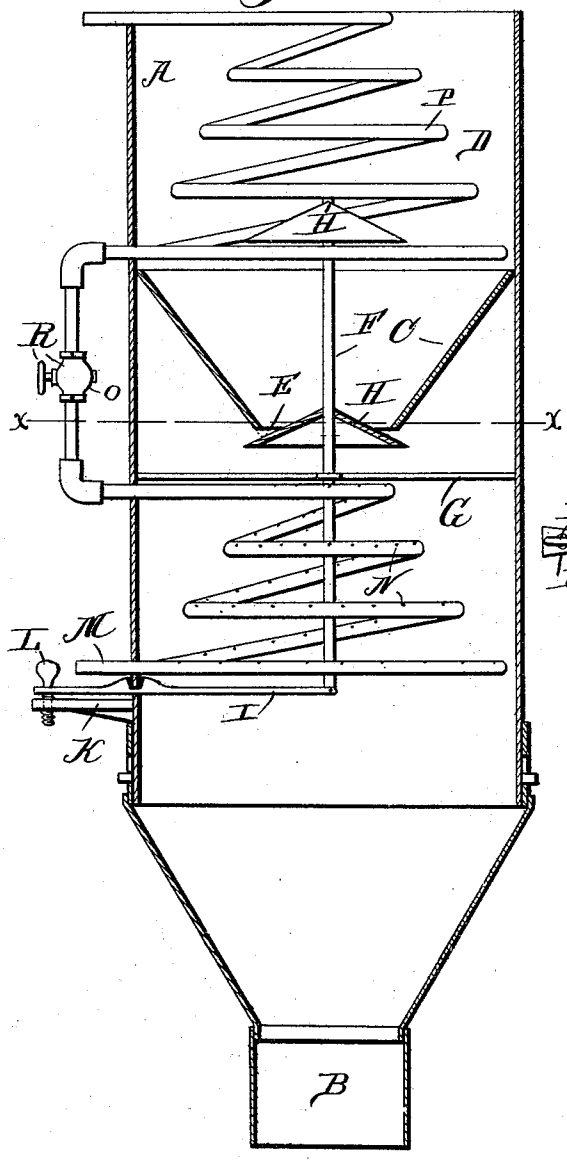
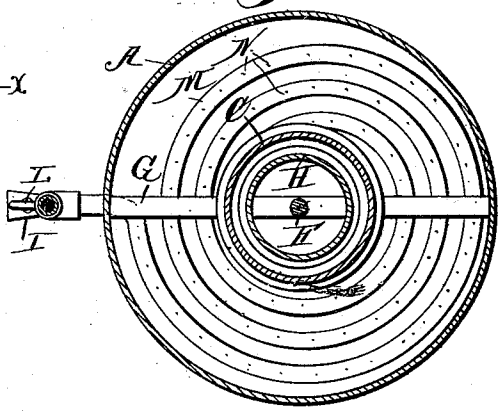


Fig. 2.



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UNITED STATES PATENT OFFICE.

ADOLF WASSMUND, OF COLOGNE, MINNESOTA.

GRAIN-HEATER.

SPECIFICATION forming part of Letters Patent No. 408,556, dated August 6, 1889.

Application filed January 26, 1889. Serial No. 297,644. (No model.)

To all whom it may concern:

Be it known that I, ADOLF WASSMUND, a citizen of the United States, residing at Cologne, in the county of Carver and State of Minnesota, have invented a new and useful Improvement in Grain-Heaters, of which the following is a specification.

My invention relates to an improvement in grain-heaters; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional view of a grain-heater embodying my improvement. Fig. 2 is a cross-section of the same, taken on the line *x x* of Fig. 1.

A represents a cylindrical vessel of suitable capacity, which has its upper end open and has its lower end funnel-shaped and provided with a discharge-opening B.

C represents a funnel-shaped diaphragm or partition arranged in the cylinder A about midway the height of the same, thereby forming a hopper D at the upper end of the cylinder. The said diaphragm C has a central discharge-opening E.

F represents a vertically-movable rod or stem, which is guided in central openings in transverse braces G, arranged in the cylinder. Attached to the said rod or stem is a conical valve H, which is arranged below the diaphragm C and is adapted to cover the opening E and to open the same to any desired extent. Near the upper end of said rod or stem is a conical deflecting-plate H′.

I represents a lever, which is fulcrumed in one side of the cylinder and has its inner end connected pivotally to the lower end of a stem or rod F. The outer end of said lever is connected to an arm or bracket K, that projects from one side of the cylinder, by means of a set-screw L. By turning the latter the lever may be operated to raise or lower the valve H and deflecting-plate H′ and secure the said valve at any desired adjustment to regulate the quantity of grain fed from the hopper. In that part of the cylinder below the hopper is arranged a steam coiled pipe M, provided on its upper side with a series of minute discharge-orifices N. The upper end of the said steam-pipe communicates with a coupling O, arranged on one side of the cylinder or vessel A, and said coupling is connected to the lower end of a steam-heating coil P, arranged in the hopper or in that part of the cylindrical vessel above the diaphragm. The upper end of the coil P extends through one side of the cylindrical vessel and communicates with the outer air. In the coupling O is located a cut-off valve R, by means of which communication may be established or interrupted between the coil M and coil P.

The operation of my invention is as follows: The lower end of the pipe M is connected to a suitable steam-boiler, (not shown,) by means of which live steam will be forced through the said pipe M and caused to escape through the openings N, and when the valve R is opened a portion of the steam is caused to circulate through the coil P. Wheat fed to the hopper will receive a preliminary heating by radiation from the coil P and will be deflected by the plate H′ onto the downwardly-inclined bottom of the hopper, and will be fed through the opening E by the valve H into the lower portion of the cylindrical vessel, and the wheat while falling through the said vessel will be subjected to the action of the jets of live steam from the orifices N, and will be consequently steamed to the necessary degree before escaping through the opening B. By closing the valve R steam will be cut off from the coil P, and consequently the wheat will not receive preliminary heating.

A wheat-heater thus constructed is extremely cheap and simple, and will be found very efficient for dampening every grain of the wheat to an equal degree, consequently imparting a uniform degree of moisture to the wheat and adapting the same to yield a superior quality of middlings and bran.

Having thus described my invention, I claim—

1. In a device for heating wheat, the combination of a hopper or casing having a hopper-shaped diaphragm, a vertically-movable adjustable stem carrying a conical valve adapted to regulate the opening in said hopper-shaped diaphragm, a perforated steam-pipe coiled in said casing below said diaphragm, and means for retaining said valve-carrying stem in any position to which it may be adjusted, substantially as set forth.

2. In apparatus for heating wheat, the vessel A, having the diaphragm C, with opening E, the valve to regulate the said opening, the live-steam coil in the lower part of the vessel and having the perforations, and the heating non-perforated coil in the upper part of the vessel, substantially as described.

3. In apparatus for heating wheat, the vessel having the diaphragm with opening E, the perforated steam-pipe M, coiled in the lower part of the vessel, the non-perforated pipe P, coiled in the upper part of the vessel and communicating with the coil M, and the valve R, to establish and cut off communication between the said coils, for the purpose set forth, substantially as described.

4. An apparatus for heating grain, comprising a casing or hopper having a funnel-shaped diaphragm open at its lower end, the perforate steam-pipe coiled in the lower part of the casing, a non-perforated steam-pipe coiled in the upper part of the casing, a central vertical rod having a deflector at its upper end and carrying a conical valve arranged below the opening in the funnel-shaped diaphragm, a lever mounted in the side of the casing and supporting said vertical rod, and a set-screw arranged in the outer end of said lever and engaging a bracket extending laterally from the side of the casing, substantially as and for the purpose set forth.

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

ADOLF WASSMUND.

Witnesses:

GEO. A. DUTOIL,

O. W. LUNDSTEN.