(No Model.)

D. W. MARMON.

WHEAT HEATER.

No. 257,139. Patented Apr. 25, 1882.

Fig. 1.

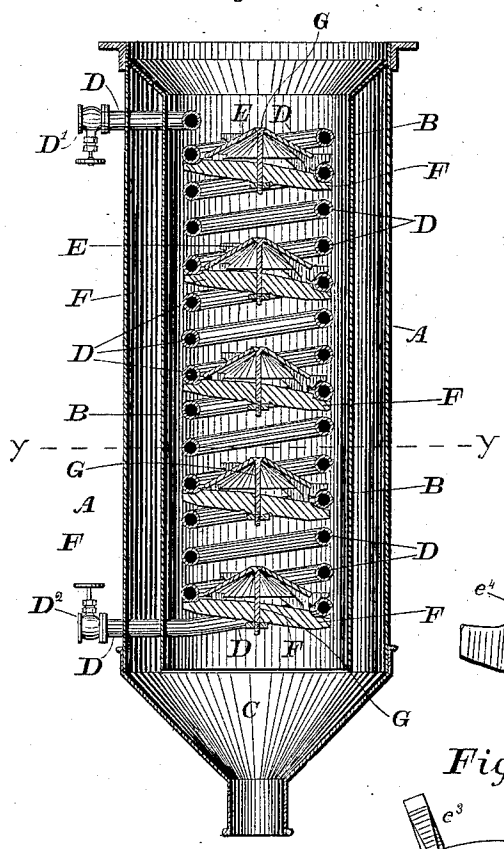


Fig. 2.

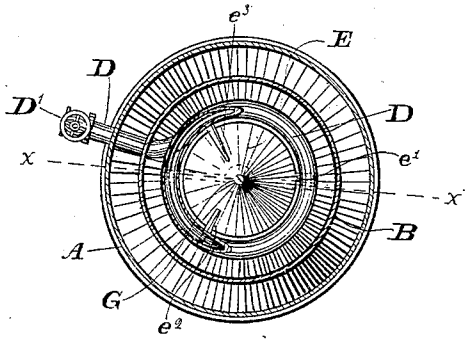


Fig. 3.

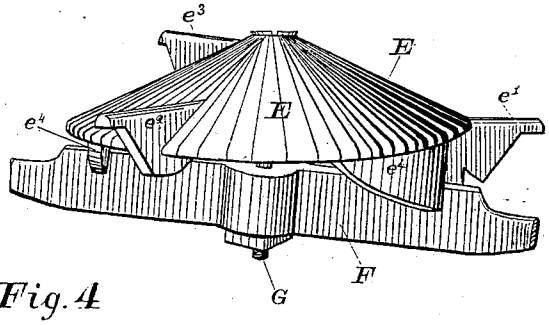
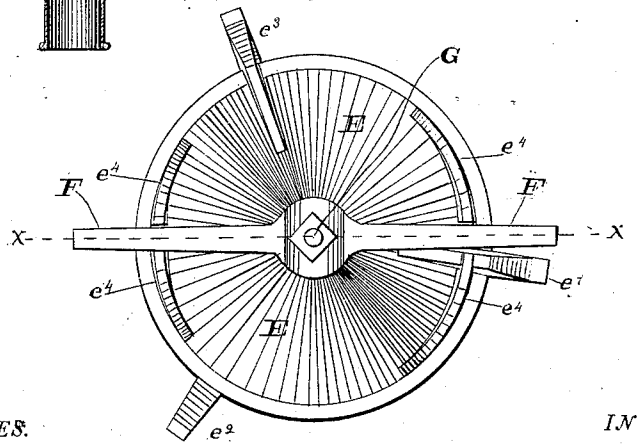


Fig. 4



WITNESSES.

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UNITED STATES PATENT OFFICE.

DANIEL W. MARMON, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE NORDYKE & MARMON COMPANY, OF INDIANA.

WHEAT-HEATER.

SPECIFICATION forming part of Letters Patent No. 257,139, dated April 25, 1882.

Application filed February 7, 1882. (No model.)

To all whom it may concern:

Be it known that I, DANIEL W. MARMON, of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Wheat-Heaters, of which the following is a specification.

My said invention consists of an improvement in that form of devices known as "wheat-heaters," whereby a more efficient device is produced for the purpose of imparting to grain (especially wheat) the necessary degree of warmth before grinding, for purposes which are readily understood by those skilled in the operating of grist-mills.

My said improvement consists of the combination, with an outer case and coils of pipe, of cone-like devices, whereby the grain is caused to pass through the heater with an irregular or pulsating movement, which causes a larger proportion of said grain to come in contact with the heated coils than where the flow is regular and uninterrupted, as will hereinafter be more specifically set forth.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a vertical section of my improved heater on the dotted line *x x;* Fig. 2, a horizontal section on the dotted line *y y;* Fig. 3, a perspective view of one of the conical devices and the means of attaching it to the coiled pipe, and Fig. 4 an under side plan of the same.

In said drawings, the portions marked A represent the outside casing of my improved heater; B, an inner casing; C, a hopper attached to the lower end of the casing A; D, the coiled pipe; E, the conical devices which are attached to the pipe-coils; F, cross-bars which serve as fastening devices for said conical devices, and G the bolts by which the parts E and F are connected.

The casing A B and hopper C are constructed of a common form and need no special description.

The pipe D may be in either single or double coils, (single coils are shown,) and is connected to other pipes leading thereto and therefrom by the cocks $D' D^2$, respectively. Steam or hot air, on being introduced into these pipes, heats them and through them whatever surrounds or comes in contact with them.

The devices E are cone-shaped, and are set with their conical faces up on the coils of pipe, (preferably on every third coil, as shown.) Each is provided with lugs (usually three) $e' e^2 e^3$, which rest upon the pipe and support said device. These lugs are made of varying heights, as shown, so that the cone will rest in horizontal position, notwithstanding the inclination of the coils, and thus distribute the wheat evenly on all sides thereof as it passes through the heater. Each of said devices is also provided with lugs e^4 on its under side, which hold the cross-bar F in place. The form of these devices may, however, be varied to a considerable extent without departing from my invention, so long as they produce an irregular or pulsating flow of grain through the heater.

The cross-bar F and bolt G simply act as clamp parts to clamp the cone E securely upon the pipe D, and will be readily understood from the drawings.

The operation of my said invention is as follows: The heater is secured in some convenient place, (preferably against the ceiling of the grinding-room of the mill.) The wheat is introduced at the top and passes down inside the casing, around and between the coils of pipe and the conical devices, to the hopper, from which it runs by an ordinary spout or conveyer to the millstones. The conical devices prevent too rapid a passage of the grain, and at the same time first cause it to flow out against the casing, and then permit it to return to the center of the device, inside the pipes, whereby an irregular pulsating flow is produced, causing the grain to mix thoroughly and the different portions to frequently change positions, thus bringing it all at different times during its passage near to or in contact with the heating-pipes, and thus heating it all evenly and thoroughly to whatever temperature is desired.

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

1. The combination, in a wheat-heater, of the casing, the coiled heating-pipes, and conical devices secured to the latter, substantially as set forth.

2. The combination, in a wheat-heater, with the casing and heating-pipes, (said pipes being disposed to occupy a considerable portion of

the space inside said casing,) of devices secured at intervals along the pipes, transversely across the course of the grain, whereby a pulsating or irregular flow of the grain is secured, thereby mixing said grain thoroughly and heating it evenly, substantially as described, and for the purposes specified.

3. The combination, in a wheat-heater, with the coiled pipes thereof, of the device E, provided with the bearing-wings of varying heights, whereby the said device is caused to rest in horizontal position, notwithstanding the incline of the coils of pipe, substantially as set forth.

4. The combination, in a wheat-heater, of the casing, the coiled pipe, the device E, the cross-bar, and the connecting-bolt, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 4th day of February, A. D. 1882.

DANIEL W. MARMON. [L. S.]

In presence of—
C. BRADFORD,
CHAS. L. THURBER.