O. M. MORSE.

Meal Cooling and Drying Apparatus.

No. 205,669. Patented July 2, 1878.

Fig. 1

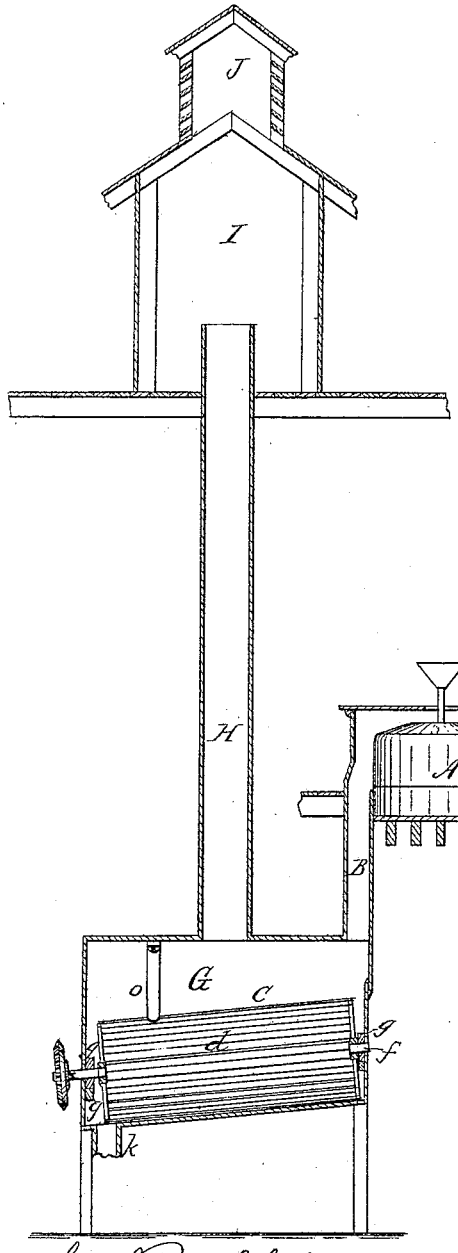


Fig. 3.

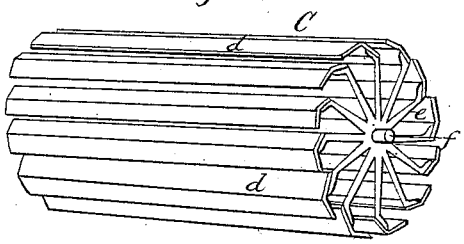


Fig. 2

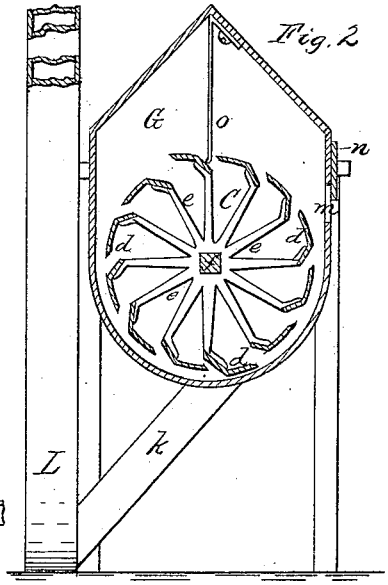
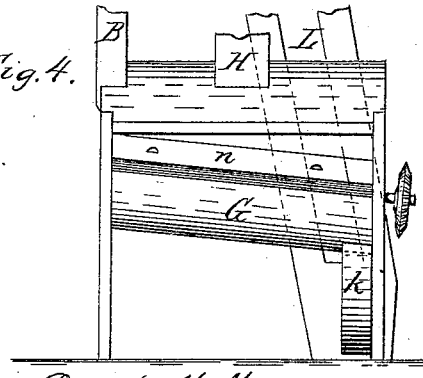


Fig. 4.



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UNITED STATES PATENT OFFICE.

ORVILLE M. MORSE, OF SILVER CREEK, NEW YORK.

IMPROVEMENT IN MEAL COOLING AND DRYING APPARATUS.

Specification forming part of Letters Patent No. **205,669**, dated July 2, 1878; application filed May 22, 1878.

To all whom it may concern:

Be it known that I, ORVILLE M. MORSE, of Silver Creek, in the county of Chautauqua and State of New York, have invented new and useful Improvements in Apparatus for Cooling and Drying Meal, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an apparatus for cooling and drying the meal during its passage from the grinding-stones to the bolts by means of an open reel, which repeatedly subjects the meal in a thin sheet to the action of the air, whereby the meal is effectually deprived of the heat and moisture generated in grinding.

The nature of my invention will be fully understood from the following description.

In the accompanying drawings, Figure 1 is a sectional elevation of my improved apparatus for cooling and drying meal. Fig. 2 is a cross-section, on an enlarged scale, of the reel and inclosing-case. Fig. 3 is a perspective view of the reel. Fig. 4 is an elevation of the reel-case.

Like letters of reference refer to like parts in each of the figures.

A represents a pair of millstones of ordinary construction, and A′ the curb, provided in its top with a central opening or eye in the usual manner. B is the closed meal-spout, which conveys the meal away from the stones, and C is the cooling-reel, preferably arranged directly underneath the stones, so that the meal-spout B discharges the meal into the head of the reel C. The reel C is composed of shallow buckets *d*, secured to spiders *e*, which are mounted on the reel-shaft *f*. The latter is supported in an inclined position in bearings *g*, formed in the inclosing-case G. The buckets *d* are preferably so constructed and arranged as to prevent the meal, after it has been fed to the buckets, from falling between them to the bottom of the case G, the material discharged from the inner edge of any bucket falling upon the succeeding buckets. The bottom of the case G is made semi-cylindrical, to correspond with the lower half of the reel C, and one or two of the buckets *d* are preferably made a trifle longer than the rest, so as to scoop up such portions of the meal as may accidentally fall to the bottom of the case. H is an ascending air-flue, connecting with the top of the reel-case G, and opening into a separating-chamber, I, in the upper part of the mill, the chamber being preferably provided with a suitable ventilator, J. *k* is a spout conducting the meal from the tail of the reel C to the foot of the elevator L, by which the meal is elevated to the upper part of the mill, where the bolts are located.

The meal passes from the stones A, down the spout B, into the head of the reel C, by dropping through the spaces between the buckets, or by falling to the bottom of the case G, where it is scooped up by the longer buckets *d*. The reel being slowly rotated by any suitable mechanism, the buckets *d* will elevate the meal on one side of the reel to a certain height, when the meal is discharged from the inner edges of the inclined buckets, and falls down upon the succeeding buckets, and so on, the meal working gradually toward the tail end of the reel until it is discharged through the spout *k*.

In descending from one bucket to the other the meal is subjected, in a thin sheet, to the action of the air, which absorbs the heat and moisture therein contained.

The heated air and vapor rise in the case G, and escape through the ascending air-flue H into the room I, where the finer particles of dust which may have been carried off with the hot air settle and are collected, while the hot air and vapor escape through the ventilator J.

The heat disengaged from the meal in the case G causes a sufficient upward draft through the flue H to prevent the dust from rising through the eye of the curb A′ into the mill.

The reel-case G is preferably provided with an opening, *m*, in one side, for admitting the exterior air to the case G, when the volume of air coming through the millstone-curb should be found insufficient to absorb all the heat and moisture contained in the meal.

The opening *m* is provided with an adjustable slide, *n*, so that it can either be entirely closed or opened to any desired width.

o is an elastic knocker hung to the top of

the case G, for jarring the reel, and detaching any portions of the meal which may adhere thereto.

In my improved apparatus the heat and vapor are carried off through the flue H as soon as they are disengaged from the meal, thereby preventing the vapor from condensing in the meal and doughing up the parts without the application of artificial heat for the purpose. The draft necessary to accomplish this object is created by the heat contained in the meal, and therefore always in proportion to the amount of heat and vapor to be carried off, but never so strong as to carry off any heavy flour, which is a source of great loss in meal-coolers employing suction-fans for creating an air-current.

I claim as my invention—

The combination and arrangement, with the millstones A and closed meal-spout B, of the inclined reel C, provided with elevating-buckets *d*, and inclosing-case G, having an ascending air-flue, H, for cooling and drying the meal in its passage from the stones to the bolt, substantially as set forth.

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