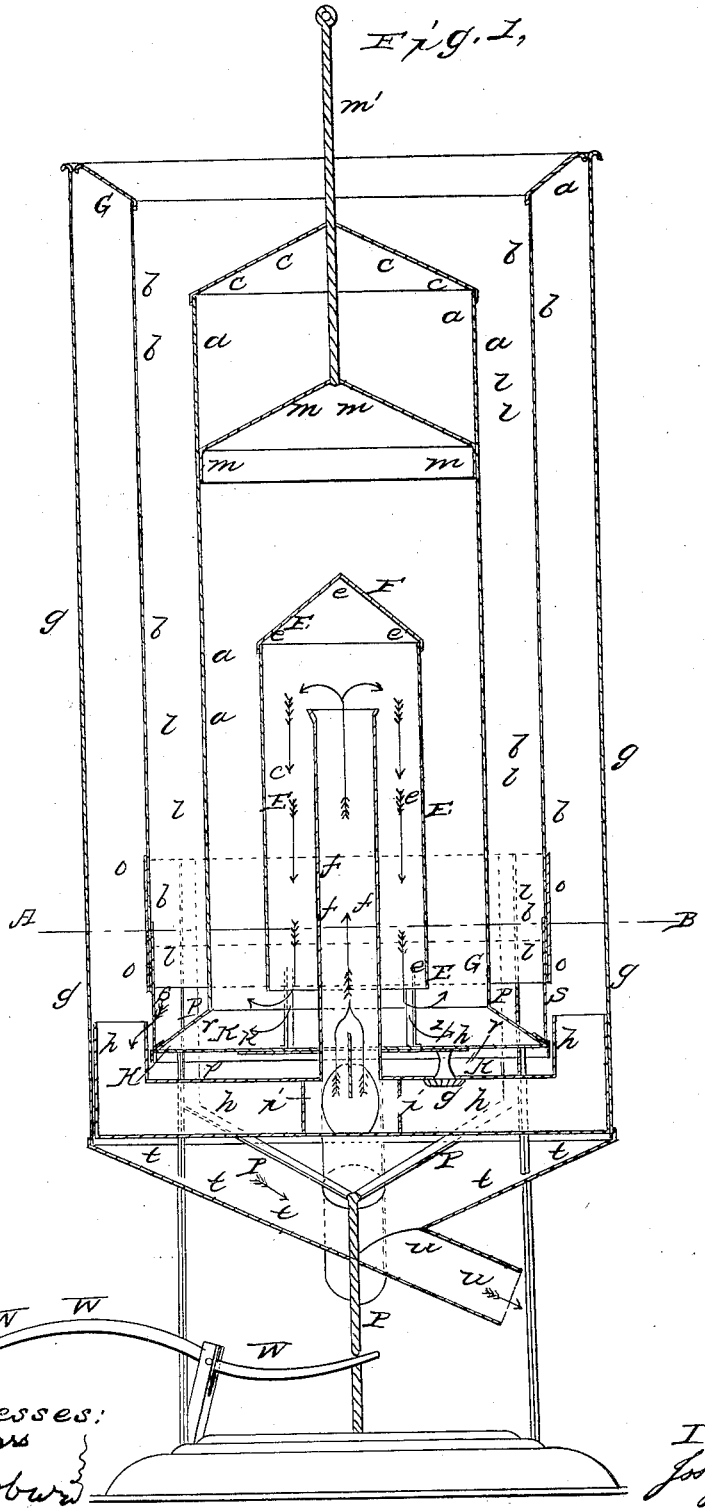
2 Sheets—Sheet 1.

J. GECMEN.

Malt Kiln.

No. 51,169. Patented Nov. 28, 1865.

Fig. 1.



Witnesses:
M E. Marrs
L L. Coburn

Inventor
Jos Gecmen

2 Sheets—Sheet 2.

J. GECMEN.

Malt Kiln.

No. 51,169. Patented Nov. 28, 1865.

Fig. 2,

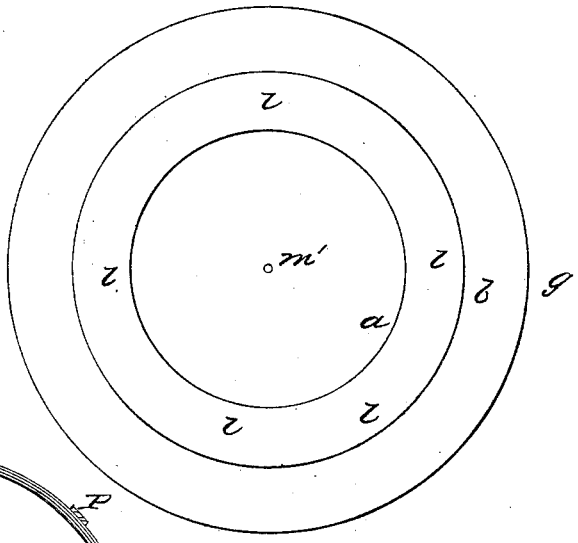


Fig. 3,

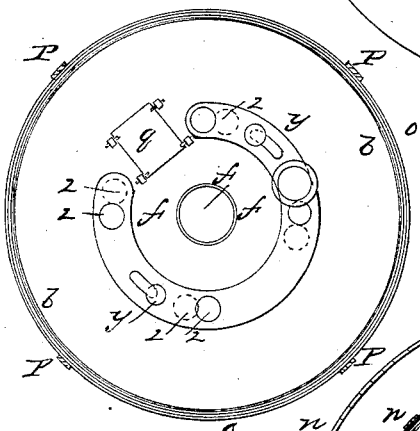
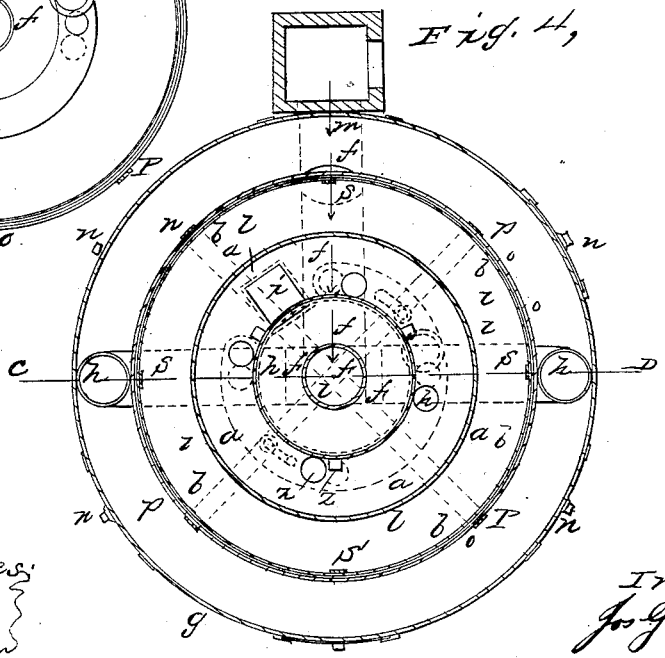


Fig. 4,



Witnesses:
M E Mann
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Inventor:
Jos Gecmen

UNITED STATES PATENT OFFICE.

JOSEPH GECMEN, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN MALT-KILNS.

Specification forming part of Letters Patent No. **51,169**, dated November 28, 1865.

To all whom it may concern:

Be it known that I, JOSEPH GECMEN, of Chicago, in the county of Cook and State of Illinois, brewer, have invented a new and useful Improvement in Malt-Kilns; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and the letters and figures marked thereon, which form part of this specification.

The nature of my said invention consists in a novel arrangement of two vertical concentric perforated cylinders surrounded by a corresponding inclosure, between which said perforated cylinders the malt is placed, so that by introducing hot air within the inner cylinder, as hereinafter described, the same passes through the perforations therein and is diffused throughout the mass of malt, thoroughly drying the same in much less time than is required in malt-kilns of the ordinary construction.

My invention further consists in a novel arrangement, whereby the hot air may be shut off from the inner perforated cylinder and directed into the space included between the outer perforated cylinder and the imperforated inclosure aforesaid, or said hot air may at the same time be admitted both into the inner cylinder and the outer space.

My invention further consists in a novel arrangement for admitting cold air upon and into the malt when desired, and also in a novel arrangement for discharging the malt from the kiln in the manner hereinafter more fully described and set forth.

To enable those skilled in the art to understand how to construct and use my invention, I will proceed to describe the same with particularity, making reference in so doing to the aforesaid drawings, in which—

Figure 1 represents a vertical central section of my invention; Fig. 2, a top view thereof; Fig. 3, a bottom view of the same, and Fig. 4 a horizontal section at the line G B in Fig. 1.

Similar letters of reference indicate the same parts of my invention in the different figures.

a represents the inner perforated cylinder, and *b* the outer perforated cylinder, *g* being the imperforated inclosure aforesaid.

The cylinders *a b* are constructed of any suitable sheet metal, and the inclosure *g* may be of brick or any other material, as preferred.

The inner cylinder, *a*, has a close conical top or cover, *c*, and the upper end of the outer cylinder, *b*, is provided with an inclined flange extending outward to the inclosure *g*, (marked *d*.)

The lower end of *a* is provided with a similar flange extending outward to the foot of the cylinder *b*, (marked *r*,) as shown.

m represents an adjustable conical and circular diaphragm or plate fitting closely within the inner cylinder, and can be moved up and down therein by means of the rod *m'* thereunto attached, as shown.

Within the inner cylinder, *a*, there is an inverted close chamber, (marked *e*,) up into which extends the hot-air pipe *f*.

The wall of the cylinder *b* does not reach down to the outer edge of the perforated flange *r*, being supported by the bars *s* thereupon, thus leaving an open space entirely around the bottom of said cylinder *b*.

o represents a circular adjustable perforated casing having a reciprocating vertical motion by means of the arms *p* attached thereto and the lever *w*, by means of which said casing may be adjusted to close the aforesaid opening at the bottom of *b*, or to leave it open, as may be desired, for the reasons hereinafter described.

i i represent dampers or valves, whereby the heat in the pipe *f*, which is introduced into said pipe from the furnace *g* through the pipe *g'*, (shown in Figs. 1 and 4,) may be admitted into the pipes *h h*, to be discharged into the space between the outer cylinder, *b*, and the inclosure *g*, *j* representing a similar valve for shutting the hot air out from the inner cylinder, *a*.

z z represent a series of valves through the bottom *k*, for the purpose of admitting cold air when desired, said valves being readily opened and closed by means of the sliding knobs *y*, attached thereto.

q represents a door or trap in the bottom, through which a person may enter for repairs when desired.

In the outer inclosure, *g*, there are suitable openings or doors, which may be closed, when desired, to facilitate the escape of the hot or cold air, (marked *n*.)

Having described the construction of my invention, I will now proceed to describe the operation of the same.

The malt is introduced at the top into the annular space *l*, between the perforated cylindrical surfaces of *a b*, which may be filled full, the adjustable casing *o* being arranged so as to close the aforesaid opening around the bottom of the outer cylinder, *b*. The cap *m* is adjusted in the inner cylinder at about the same height with the malt in the space *l*. The heat is then admitted through the pipe *f* into the inverted vessel *e*, whence it passes, in the direction of the dark arrows, into the cylinder *a*, through the perforations therein, the malt, and the perforations in cylinder *b*, thoroughly drying the malt, which requires no stirring, as is the case in kilns of the ordinary construction.

If desired, by closing the valve *j* and opening the valves *i i* the heat may be introduced outside the exterior cylinder, *b*, through the pipes *h*. By opening the valves *z* cold air may also be admitted to regulate the temperature of the kiln when desired.

As the malt becomes more and more thoroughly dried it shrinks in bulk and falls or settles down in the space *l*. As the malt settles the cap *m* should also be moved down, so as to prevent any of the heat from escaping through the cylinder *a* without passing through the malt.

When the malt is thoroughly dried and prepared the slide *o* is raised, when the entire contents of the kiln pass out at the aforesaid opening at the bottom of *b*, falling into the funnel-shaped receiver *t*, whence it goes out by the spout *u* into the proper receptacle.

By this invention the malt is dried in about one-half of the time and with much less fuel than is required in the ordinary kilns, while at the same time the unhealthy labor of constantly or frequently stirring the malt in process of drying is avoided.

This invention is equally applicable for drying grain.

Having described the construction and operation of my invention, I will now specify what I claim and desire to secure by Letters Patent.

1. The combination and arrangement of the inner perforated cylinder, *a*, the adjustable diaphragm *m*, and the perforated cylinder *b*, arranged substantially as specified and shown.

2. Providing the inner cylinder, *a*, with the adjustable conical diaphragm *m*, arranged and operating as specified and described.

3. The arrangement of the perforated annular slide *o* with the cylinder *b*, substantially as and for the purposes specified.

4. The combination of the inverted close chamber *e* with the perforated cylinder *a*, arranged and operating substantially as and for the purposes specified and shown.

5. In combination with a malt-kiln, constructed substantially as described, the employment of the hot-air tubes *f h*, provided with valves *i j*, arranged as shown and specified, and for the purposes described.

Witnesses: JOS. GECMEN.

W. E. MARRS,

L. L. COBURN.