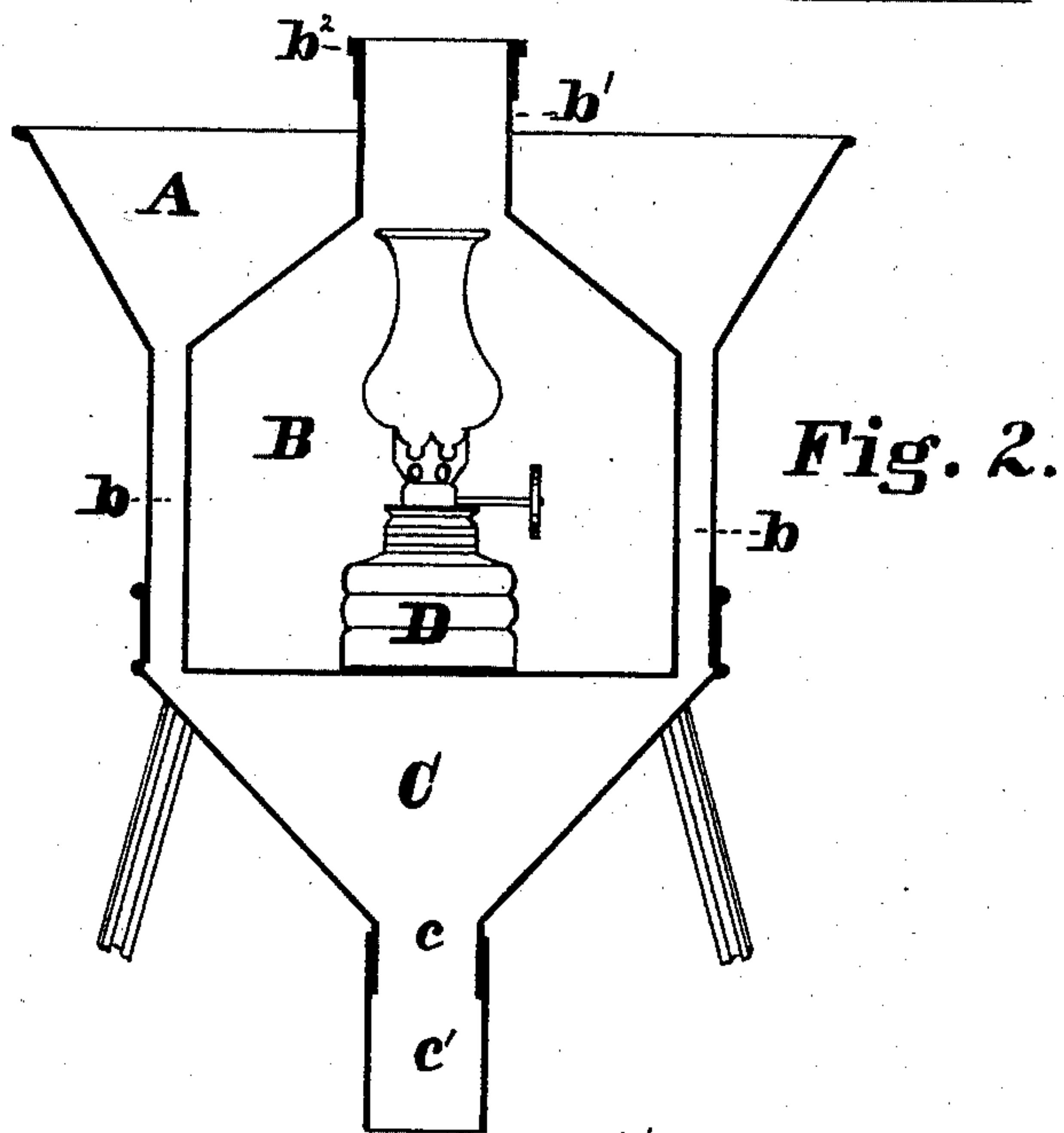
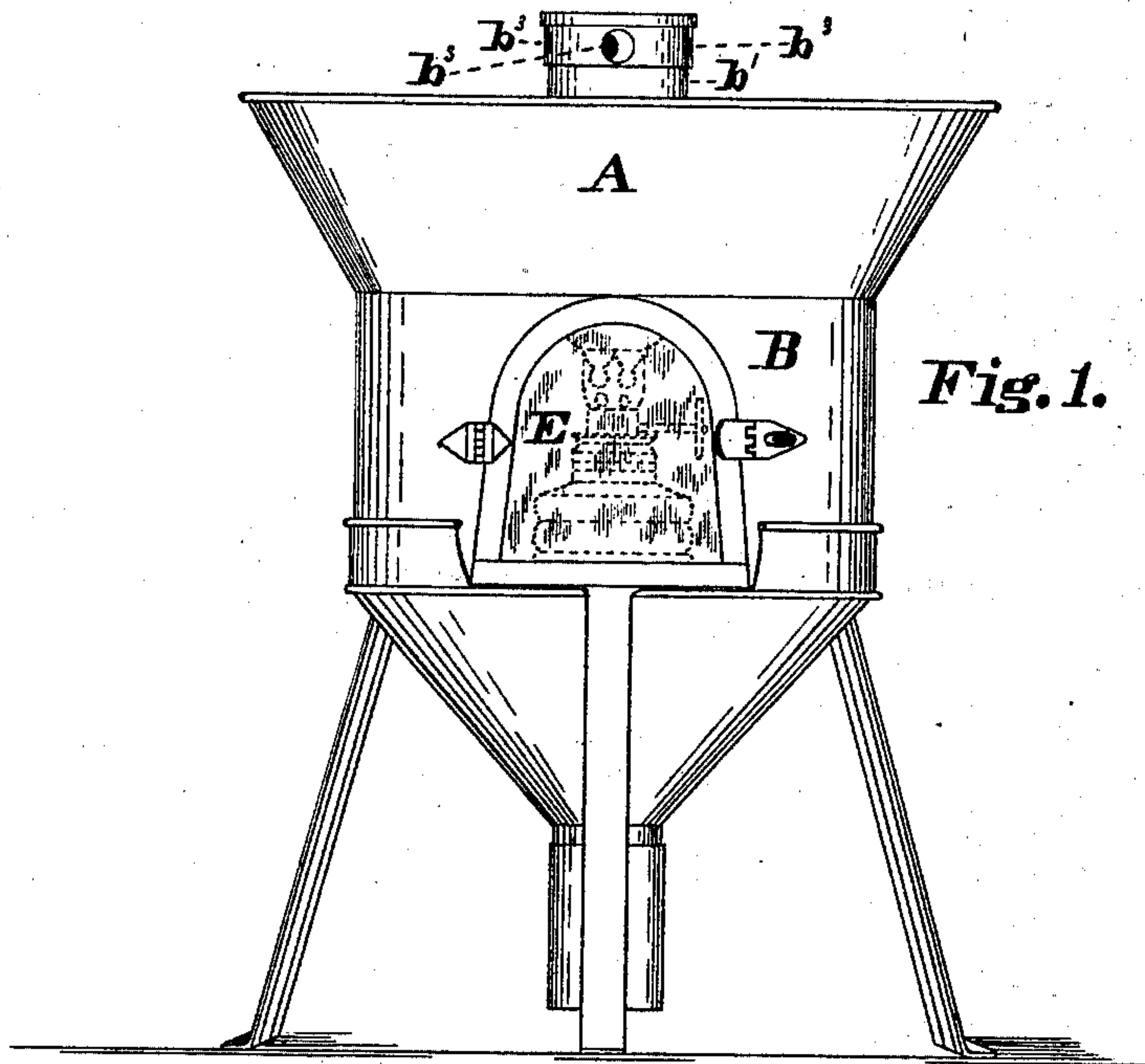


M. L. MOWRER.
Wheat-Heater.

No. 222,721.

Patented Dec. 16, 1879.



Attest.

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UNITED STATES PATENT OFFICE.

MARTIN L. MOWRER, OF DAYTON, OHIO.

IMPROVEMENT IN WHEAT-HEATERS.

Specification forming part of Letters Patent No. **222,721**, dated December 16, 1879; application filed October 13, 1879.

To all whom it may concern:

Be it known that I, MARTIN L. MOWRER, of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Wheat-Heaters, of which the following is a specification.

My invention has for its object the arrangement of a hopper, wheat-heater, and signal-light, in combination with a feed for mill-burrs, in such a manner as to bring the whole conveniently together, and immediately under the eye of the miller; and it consists of the ordinary wheat-hopper, into which is spouted the wheat from the stock-hopper or sink.

To the hopper is attached a lamp-chamber containing an oil or spirit lamp. The roof of the lamp-chamber, which is also the bottom of the wheat-hopper, is a frustum of a cone, and terminates at the top in a tube or chimney to carry off the gases of combustion from the lamp. Around the lamp-chamber is provided an annular space, through which the wheat passes from the hopper above to the conical concave chamber and feed-tube below.

The lamp-chamber is provided with a hinged or sliding door, set with glass or mica or any other transparent plate, through which the light-rays from the lamp pass, to serve as a signal-light to the miller.

The wheat-hopper, heater, and feed are arranged together, and mounted on an open base or on legs, to set on the mill-curb, over the center of the burrs.

The device may be made of tin-plate, sheet iron or copper, or of any other suitable material, and when placed in position dispenses with the ordinary silent feed hopper and tube.

The wheat is fed from the stock-hopper of the mill, by the usual spout, to the hopper of my device, whence it passes, by gravitation, over the floor of the hopper into the annular passage surrounding the lamp-chamber, and, finally, into the conical chamber and feed-tube below. In passing from the hopper into the annular passage around the lamp-chamber, the wheat is thoroughly heated, and any moisture that may be present in or with the grain is driven off by vaporization.

Should the light be extinguished at any time

by reason of a lack of oil or spirits, or from any other cause, the miller on duty will immediately detect it, and stop the feed to the stones until the light is renewed.

In the accompanying drawings, Figure 1 is an elevation of my device, and Fig. 2 a sectional elevation thereof.

Similar letters of reference indicate corresponding parts.

A is the hopper for the reception of the wheat. B is the lamp-chamber surrounded by the annular passage *b*. *b'* is the chimney or tube to carry away the gases of combustion from the lamp D. The chimney is provided with a revolving register-cap, *b*², and perforations *b*³, to regulate the concentration of heat in the lamp-chamber and chimney. The perforations *b*³ in the cap coincide more or less, as may be required, with similar perforations in the side of the chimney. C is a conical concave chamber or hopper below the heating-chamber, and *c* is the feed spout or tube, with sliding end tube *c'*.

Although I show, and prefer to use, an oil or spirit lamp to warm the heating-chamber with, it is evident that a heating-chamber for charcoal or other luminous fuel can be substituted, and will answer quite as well as the lamp. The lamp, however, is sufficient for warming and heating the wheat, and is more convenient to manipulate, besides preserving a nearly uniform temperature of the heating-chamber for any given adjustment of the register-cap *b*².

The opening through the side of the lamp-chamber is covered with a hinged door, E, set with mica or plate-glass.

I am aware that steam-heaters for warming and drying grain in flour-mills are old and well known; but I believe that my invention represents the first attempt to heat grain, as it is fed from the stock-hopper to the grinding-burrs, by direct heat.

The steam-heat process requires a steam-generator and expensive drying-room and radiating coils, which, in water-mills, entails a heavy outlay for apparatus and additional labor to maintain the desired steam-pressure in the boiler, and to manipulate the grain. With

the direct-heat process for drying and heating grain as I arrange it, no additional labor devolves upon the miller or his assistants, and the apparatus is inexpensive and easily applied.

It is obvious that my invention can be used to heat and dry other cereals as well as wheat; but the principal use will be in flour-mills, as described.

Having described my invention, what I claim is—

An apparatus for heating grain in which are combined a hopper, A, having a conical bottom terminating in a feed-tube, *c*, the chamber B, constructed to receive a lamp and sus-

pending within the hopper A, to create an intervening annular space, *b*, said chamber having its upper end in the form of the frustum of a cone, terminating in the tube provided with perforations *b*³ and a rotary register-cap, *b*², and a transparent door, E, to the lamp-chamber B, all substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand this 27th day of September, 1879.

MARTIN L. MOWRER.

Witnesses:

EDGAR J. GROSS,
COLLIN FORD, Jr.