K. SCHROLL.

GRAIN-DRIER.

No. 180,071. Patented July 18, 1876.

Fig: 1.

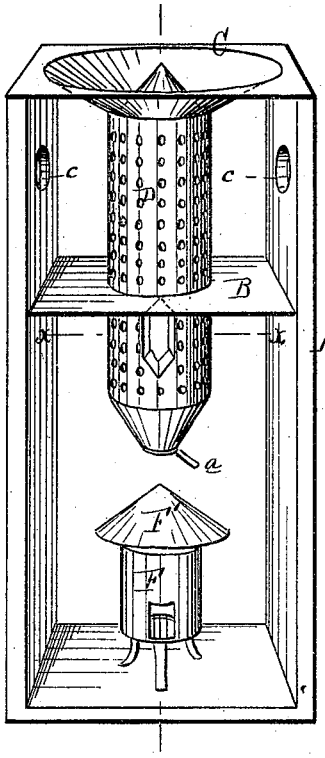


Fig: 3.

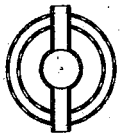


Fig: 4.

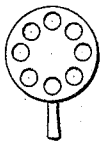
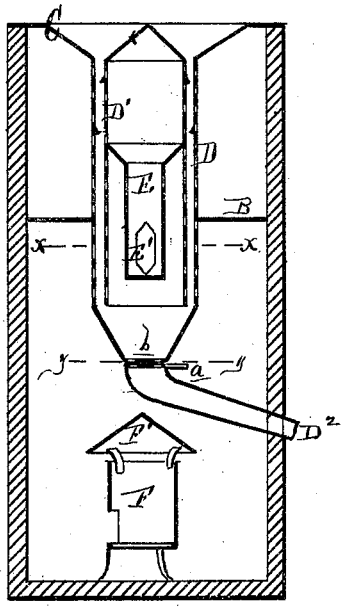


Fig: 2.



Witnesses

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UNITED STATES PATENT OFFICE.

KARL SCHROLL, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN GRAIN-DRIERS.

Specification forming part of Letters Patent No. **180,071**, dated July 18, 1876; application filed June 1, 1876.

To all whom it may concern:

Be it known that I, KARL SCHROLL, of Chicago, in the county of Cook and State of Illinois, have invented an Improvement in Grain-Driers, of which the following is a specification:

The nature of my invention relates to an improvement in grain-driers of that class wherein a thin descending sheet of damp grain is subjected to the desiccating effects of currents of heated air passing through the sheet of grain; and the invention consists in the peculiar construction and arrangement of two concentric perforated cylinders and a diaphragm in a closed chamber, containing in its lower part an open charcoal-furnace, the whole being arranged to operate as more fully hereinafter set forth.

Figure 1 is a perspective view, showing the interior of the drying chamber and apparatus. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a horizontal section at *x x*. Fig. 4 is a plan of the spout-valve, being a section at *y y*.

In the drawing, A represents the drying-chamber, having across it, above the middle, a diaphragm, B. The top C of the chamber may form the bottom of an elevated grain-bin, and has a flaring opening, from which is suspended a perforated sheet metal cylinder, D, which passes through the diaphragm B, its lower end being conical, and terminating in a lateral discharge-spout, D^2, in the upper part of which there is a circular valve, *a*, centrally pivoted to a plate, *b*, in the bottom of the cylinder, both of which are perforated with a row of holes on the same radius. The holes in the valve may be brought coincident with those in the plate, and the valve may be adjusted to regulate or shut off the outflow of grain.

D^1 is an inner cylinder, suspended concentrically within the cylinder D, and is, like the other, finely perforated. It is closed at the top by an imperforate conical deflector-cap, as seen in Fig. 2. E is a short flue, suspended at its flaring head concentrically in the cylinder D, access to the lower part of which is had by two lateral flues, E′. F is a brazier, or open charcoal-furnace, in the lower part of the chamber, covered by a projecting hood, F′, to prevent the escape of sparks from the snapping of the fuel. *c c* are outlets for the air-currents in the upper part of the chamber.

The operation is as follows: The space between the cylinders is filled with descending grain, in a thin sheet, whose outflow is regulated by the valve. The heated air and gases from the brazier rise until arrested by the diaphragm, when a portion will pass through the flues E′ E′ E into the upper part of the inner cylinder, thence out through the perforations and the annulus of grain into the upper part of the chamber, finding an exit at the openings *c c*. The remainder will pass through the perforations of the lower part of the cylinders and the interposed grain, and rise around the flue E until above the diaphragm, when they will pass out through the grain in like manner, absorbing its moisture in passing through it.

What I claim as my invention is—

In a grain-drier, substantially as described, the combination, with the chamber A, having an open brazier, F, at the bottom, of the perforated concentric cylinders D D^1, fitted with the spout D^2, valve *a*, flues E′ E, and the diaphragm B, substantially as and for the purpose set forth.

KARL SCHROLL.

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