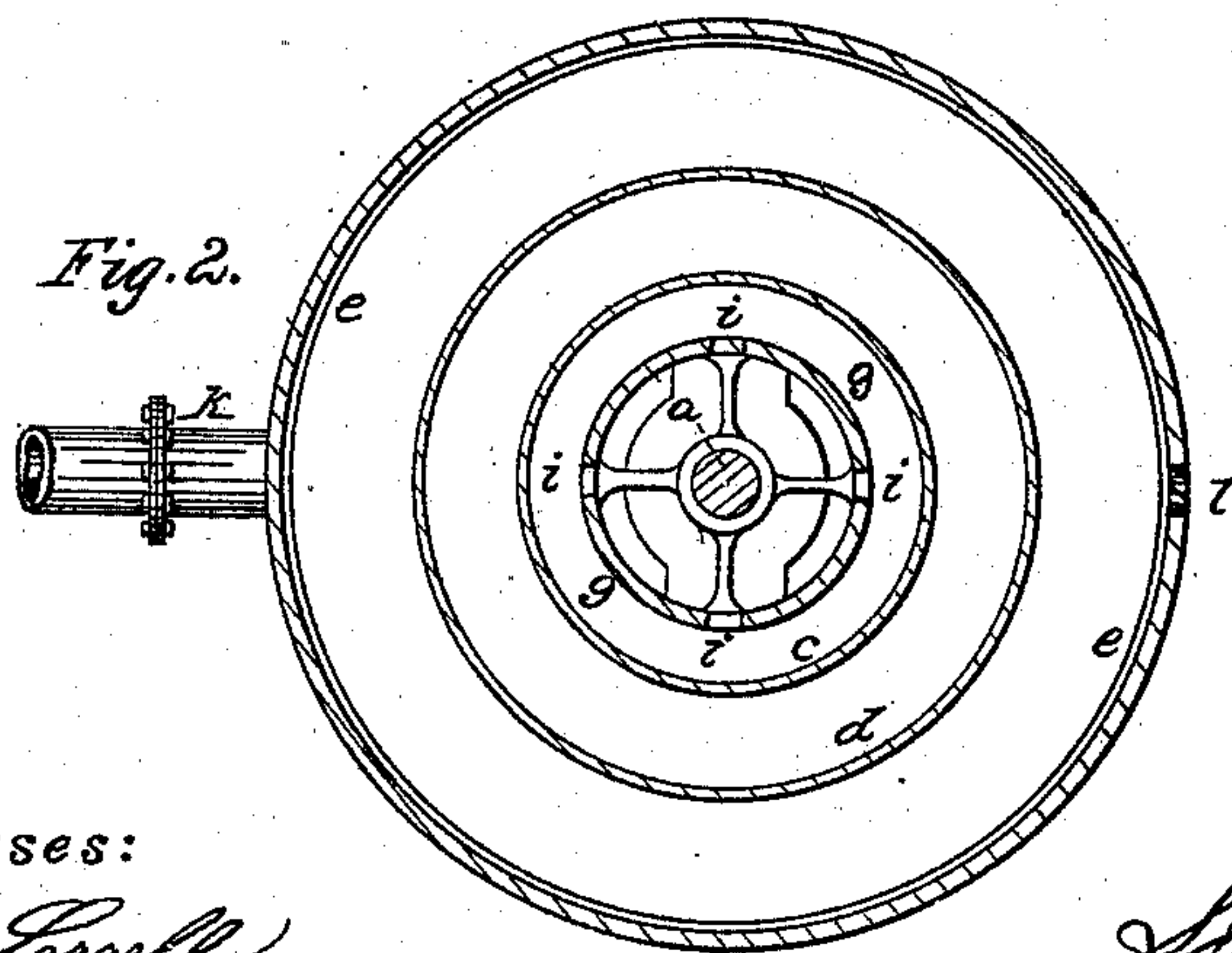
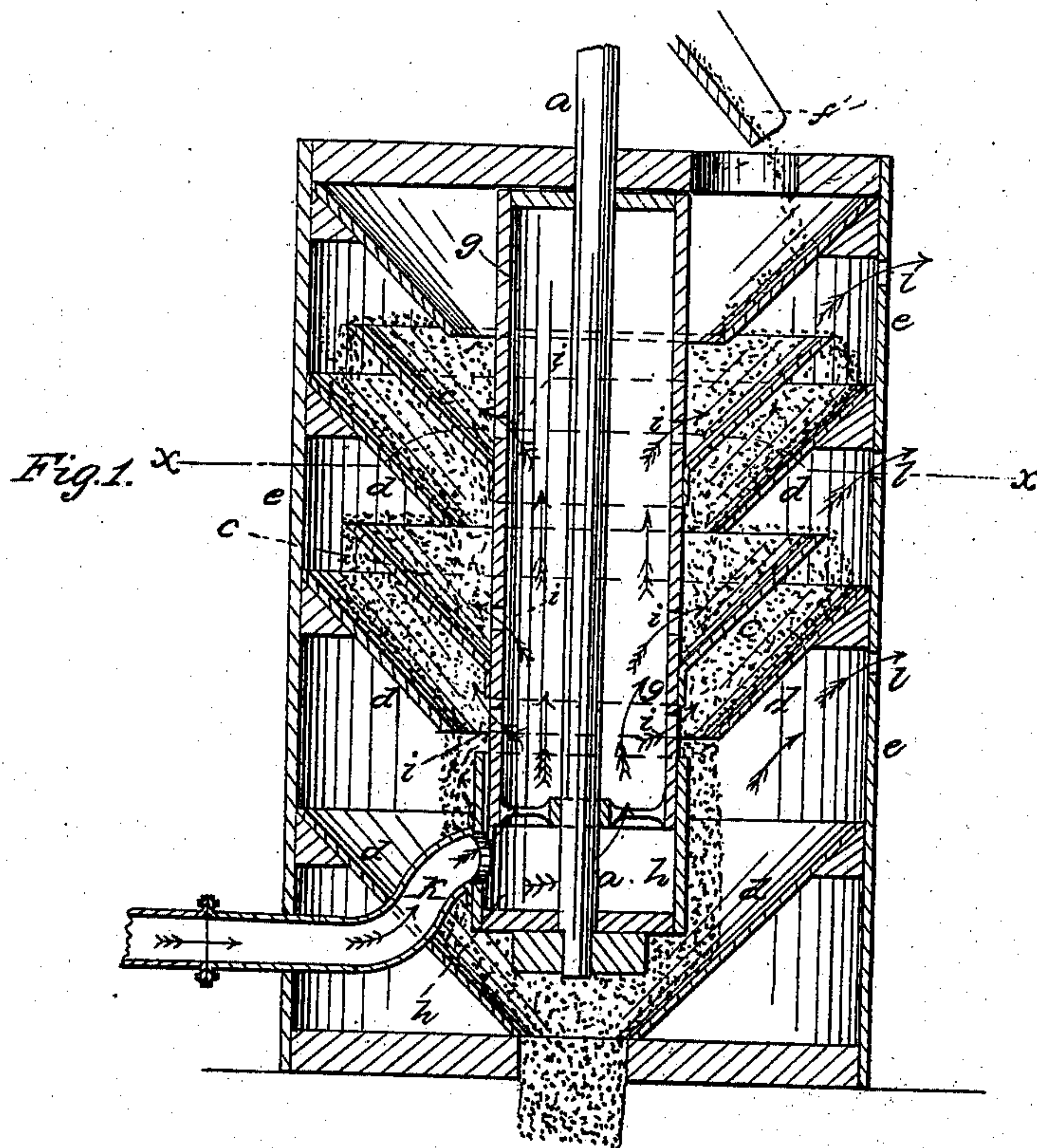


L. S. CHICHESTER.

Grain Drier.

No. 39,630.

Patented Aug. 25, 1863.



Witnesses:

Samuel W. Ferrell
Chas. H. Smith

Inventor:

L. S. Chichester

UNITED STATES PATENT OFFICE

LEWIS S. CHICHESTER, OF NEW YORK, N. Y.

IMPROVEMENT IN GRAIN-DRIERS.

Specification forming part of Letters Patent No. 39,630, dated August 25, 1863.

To all whom it may concern:

Be it known that I, LEWIS S. CHICHESTER, of the city and State of New York, have invented and made a certain new and useful Improvement in Grain-Driers; and I do hereby declare the following to be a full, clear, and exact description of my said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a vertical section of my grain-drier, and Fig. 2 is a sectional plan of the same at the line *x x*.

Similar marks of reference denote the same parts.

Grain has heretofore been dried on heated surfaces, both oblong and circular, and also by an ascending current of air.

The nature of my said invention consists in a vertical shaft carrying centrifugal tables, in combination with funnels intervening between the respective centrifugal tables, so as to receive the grain as thrown off from the edge of one table, and return it near the center portion of the centrifugal table next below, and I arrange the parts so as to introduce a supply of heated air that is directed upon the grain as it passes over the respective centrifugal tables and funnels.

In the drawings, *a* is a vertical shaft set in any suitable step, *b*, at the bottom, and sustained by a journal-box at or near the top, and this shaft and the parts carried by it are to be revolved by any competent power and with the required speed. Around this shaft, secured at suitable distances apart, are the centrifugal drying-tables *c*, the number of which may be increased according to the capacity of the machine, and the size of these centrifugal tables is to be regulated according to speed and other requirements of the machine. These centrifugal tables are to be inverted cones, or of a dishing shape; and below each of these dishing centrifugal tables is a return-funnel, *d*, sustained at its outer edge by a suitable casing, *e*. The grain is supplied at *f* from any suitable hopper or spout, and falling upon the upper funnel is passed to the top table *c*, near the center thereof, and the centrifugal force, as said table is revolved, scatters the grain over the edge upon the next funnel, *d*, below, which in turn concentrates the same again near the center of the next centrifugal table, to be

thrown off as before, and the grain passes thus alternately from the tables and funnels until it reaches the bottom of the apparatus, when, in consequence of the agitation in connection with heat applied to said apparatus, the grain will be dry; and I remark that the time occupied by the grain in passing through the apparatus will depend upon the speed and shape of the tables, and the consequent quicker or slower scattering of the grain from the tables by the centrifugal action. Ribs or deflectors may be applied to these centrifugal tables to accelerate or retard the grain.

In order to apply a circulating current of heated air to the grain as it descends I employ the central hot-air tube, *g*, surrounding or forming the central shaft for the centrifugal tables *c*, and said tables may be cast upon or connected with this tube. The lower end of this tube *g* opens into an air-box, *h*, to which heated air is supplied by a pipe at *k*, and perforations *i i* are formed in this air-tube at such points as will most effectually direct the heated air upon the grain in its passage through the apparatus; and *l l* are openings through the case *e*, by which the heated air, surcharged with moisture, is to escape.

I prefer that an exhaust-blower be employed to draw air from over a fire, either alone or commingled with the atmosphere at the usual temperature, and force such heated air into the apparatus through this central hot-air shaft; and the air that passes out of the apparatus by the openings *l* may be received in a surrounding chamber and aid in keeping up the temperature of the drier. Care must be taken not to have the air too hot, or it will burn or scorch the grain; and to those centrifugal tables upon which the damp or wet grain first falls, a fixed or standing scraper may be applied, extending from the casing or from the upper funnel, to agitate the revolving grain and prevent it from adhering while wet to the centrifugal table.

Dampers may be applied to regulate the exit of the heated air from the apparatus, so as to maintain a plenum of hot air within.

The red arrows in the drawings show the direction of the heated currents of air, and the yellow lines the grain.

My apparatus can be used for cooling grain if cold air is introduced instead of hot.

What I claim, and desire to secure by Letters Patent, is—

1. A series of centrifugal drying-tables, in combination with the stationary intervening funnels for receiving the grain as scattered from one table and returning it to the next table below, substantially as specified.

2. The central hot-air tube, *g*, and its openings *i*, in combination with the said centrifugal tables and funnels, for the purposes and as specified.

3. The escape-apertures *l*, for regulating the escape of the heated air and vapors, in combination with said centrifugal tables and funnels, as specified.

In witness whereof I have hereunto set my signature this 16th day of May, A. D. 1863.

LEWIS S. CHICHESTER.

Witnesses:

LEMUEL W. TERRELL,
CHAS. H. SMITH.