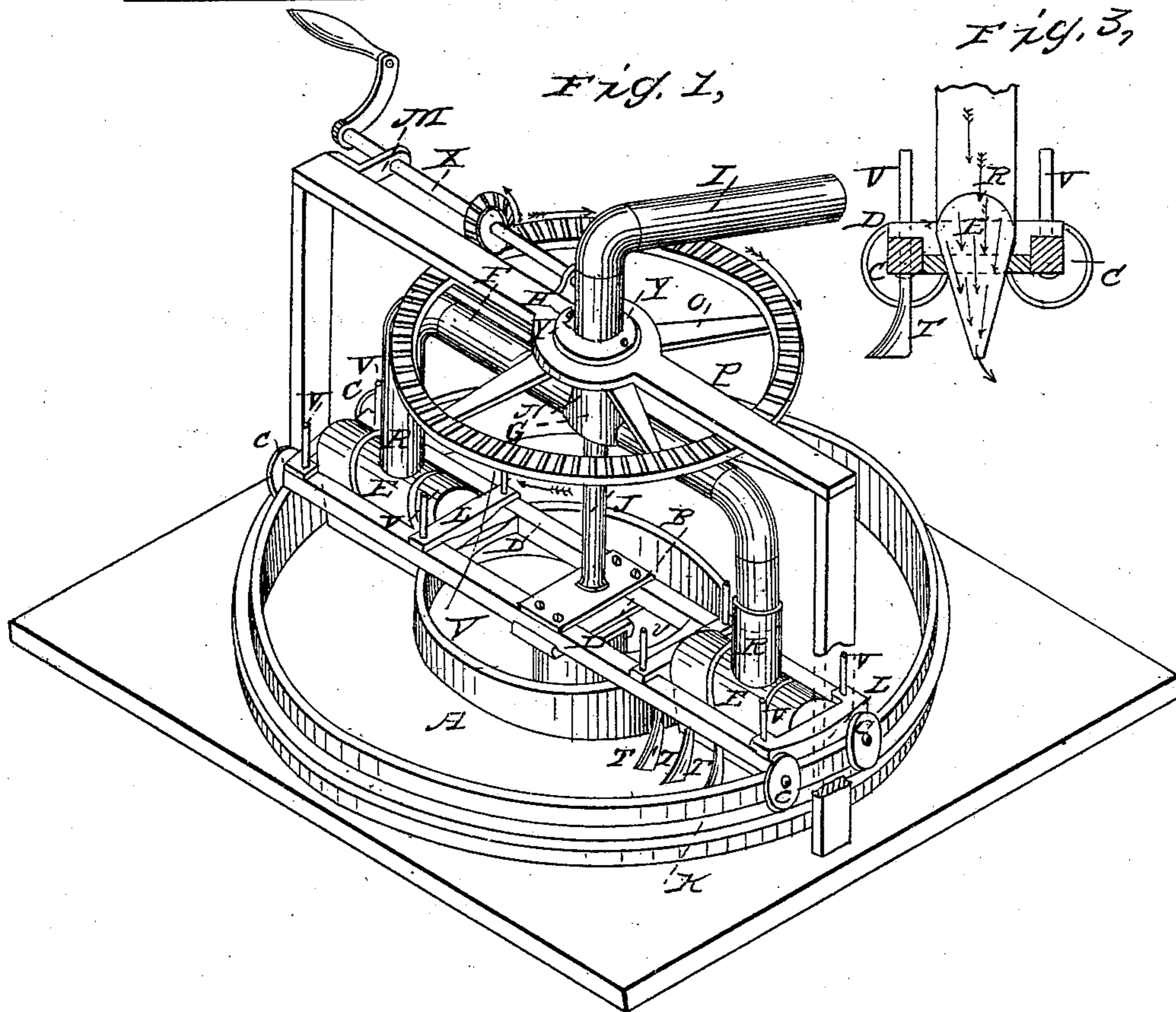
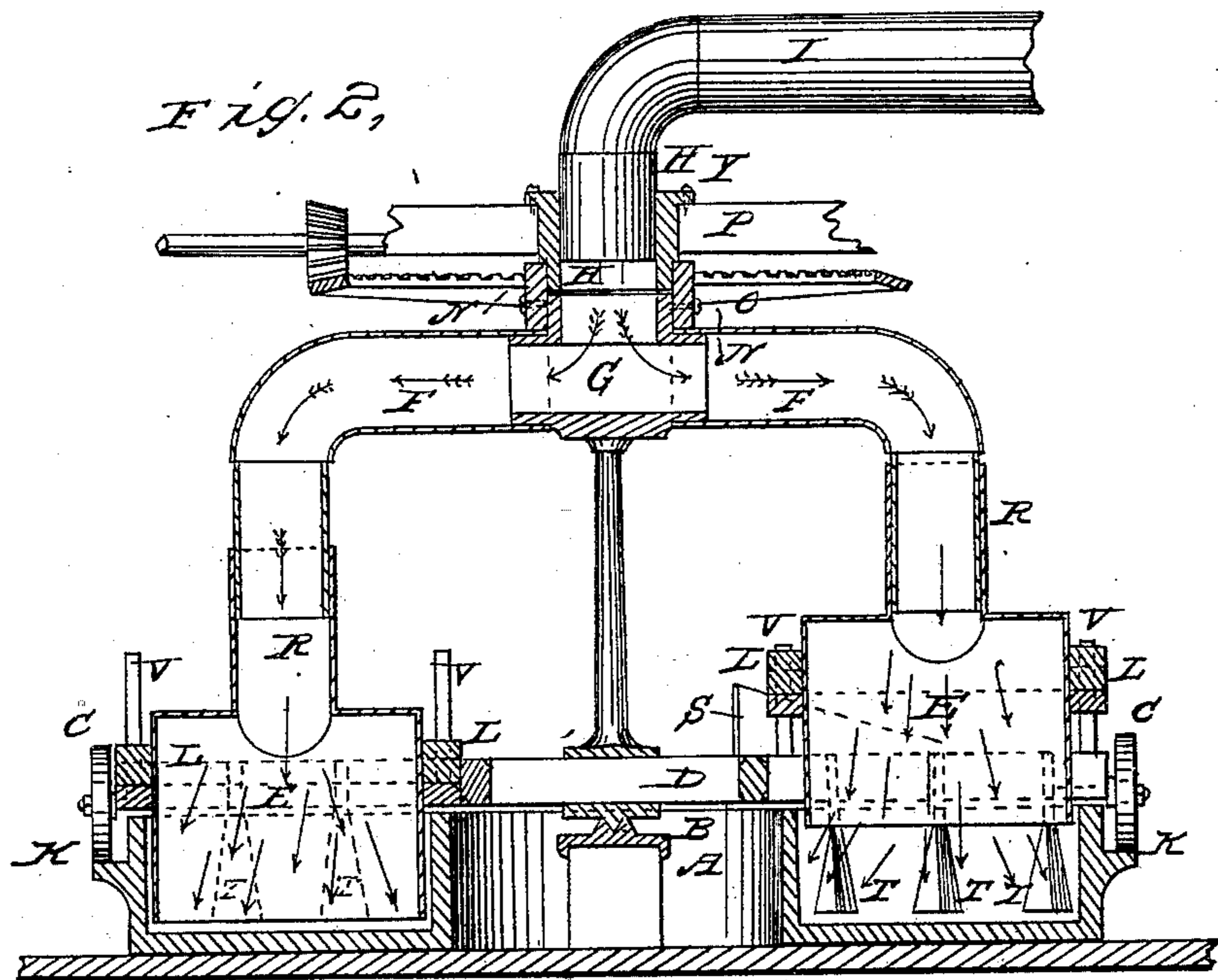


HASKINS & MACARDLE.

Grain Drier.

No. 22,144.

Patented Nov. 23, 1858.



UNITED STATES PATENT OFFICE.

C. A. HASKINS AND G. MACARDLE, OF NEW YORK, N. Y., ASSIGNORS TO JOSHUA A. FRENCH
AND ELIZA C. TYRRELL, OF JERSEY CITY, NEW JERSEY.

GRAIN AND FRUIT DRIER.

Specification of Letters Patent No. 22,144, dated November 23, 1858.

To all whom it may concern:

Be it known that we, CHARLES A. HASKINS and GEORGE MACARDLE, both of the city, county, and State of New York, have
5 made certain new and useful Improvements in Machines for Drying Grain, Fruits, Vegetables, or any other Similar Material; and we hereby declare that the following is a full and exact description thereof, reference being had to the accompanying draw-
10 ings, and to the letters of reference marked thereon, of which—

Figure 1, is a perspective view, and Fig. 2, a sectional view, and Fig. 3, a detached
15 view of our improved machine.

The nature of our invention consists in the traveling pipes, with adjustable connecting drums, through which the hot air is compressed, and distributed over and
20 through the grain, or other substances, also the carriage, and seats upon which the adjustable drums are supported, raised, and carried.

To enable others skilled in the art to
25 clearly understand our invention, we will proceed to describe its construction and operation, by the drawings marked 1, and 2, commencing with the letter A, it being the circular trough which contains the grain, or,
30 other substance to be dried. It is made stationary upon the floor, having a track *k*, on the outside rim, for the wheels *c, c, c, c*, attached to the carriage D, D, to travel on. It is made of wood, or iron, and put up in
35 sections if desired, for convenience of transportation. The carriage D, D, supports the drums E, E, on each end, by means of seats L, L, through which they project, and rest. The seats L, L, and drums E, E, are raised,
40 and lowered, by means of a wedge S or otherwise, so as to govern the heat upon the substance, as the case may require. The rods *v, v, v, v*, passing through the corners of the seats L, L, serve to keep them in their
45 proper position when raised up, and down.

The pipes F, F, are attached to the chamber G, through which the hot air is forced, and conducted into the drums E, E. The gear wheel O, is united to the chamber G, and
50 made fast by means of two set screws N, N. In the top of the gear wheel O, is a pipe journal H, fitted into it, and attached to a girt P, through which it passes, and made fast, by means of set screws Y, Y, allowing
55 the gear wheel O, to turn upon it, carrying

the shaft J, which being united to the chamber G, at the top, and to the carriage D, D, at the bottom propels the pipes, F, F, and carriage D, D, upon which the adjustable drums, E, E, are arranged, and adjusted, 60
diffusing the hot air into, and around the trough A. The pinion, and shaft X, which propel the gear O, are united and supported by a brace or bracket M attached to the girt P. 65

The object of the adjustable arrangements in the drums is to carry the heat from the grain, or throw it in direct contact, as the material or substance may require, as some grain, also fruits, will not admit of the hot 70
air coming in direct contact without destroying the flavor, and quality, and otherwise injuring them. Therefore the hot air must be distributed, and applied to the fruits, or grain, at various distances, as the substance 75
may require. In other instances we require the hot air in close contact at certain stages of our drying process, while the rakes T, T, throw the substance over, and cause the hot air to diffuse itself through the substance 80
to be dried, equally, and evenly. The advantage derived from these traveling pipes, and adjustable drums, in the grain, fruit, malt, and vegetable drying business, will be readily understood, and appreciated by all 85
who are accustomed to the old system of grain, and fruit, drying. The hot air is forced through the main pipe I, passing through the pipe journal H, and gear wheel O, into the chamber G, branching off 90
through the traveling pipes F, F, into the adjustable drums E, E, diffusing the hot air, as shown by the arrows in Figs. 2, and 3. The drums E, E, are formed with an oval top, or semicircle shape, with the sides 95
contracted toward the bottom, as shown in the Fig. 3, so as to compress the air, that it may have a more diffusive and penetrating effect, and the opening at the bottom being continuous, the entire length of the 100
drums, it distributes the hot air evenly over and through the whole surface and body of grain, &c. The carriage D, upon which the shaft J, is attached is supported by the bearings B at the bottom, and balanced 105
thereon. The hot air is forced into the pipe by means of the blast from the blower passing into the hot air chamber, and forced through the heater into the main pipe I. The pipes R, R, attached to the drums E, E, 110

slide over pipes F, F, when the drums are raised, and lowered.

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

5 The traveling pipes, and adjustable drums, and the form of the drums through which the hot air is compressed, and distributed over, and through the material to be dried; also the carriage and seats upon

which the drums are adjusted, supported, 10 raised, and carried, in combination with the pipe journal H, gear wheel O, and chamber G, substantially as described.

CHARLES A. HASKINS.

GEORGE MACARDLE.

Witnesses:

M. L. COONS,

S. HOSFORD.