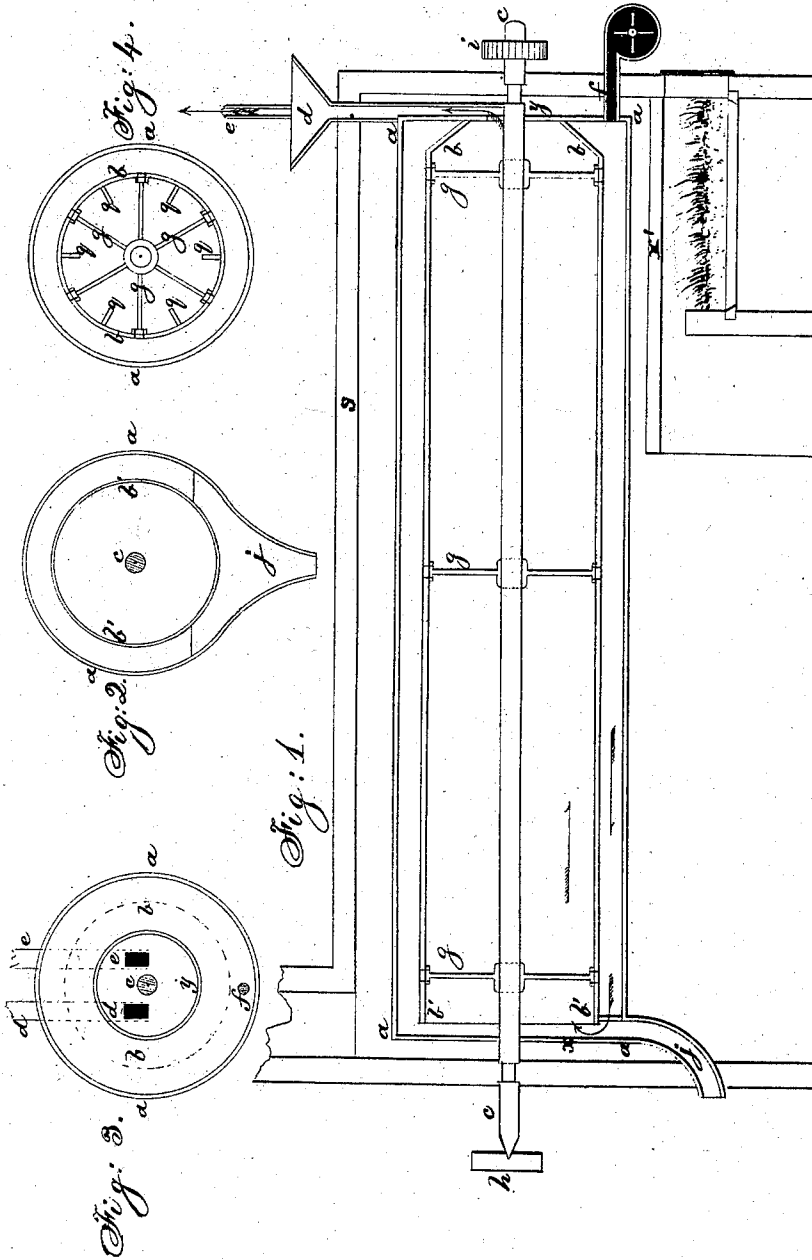


M. R. DUDLEY.
KILN DRYING APPARATUS.

No. 7,321.

Patented Apr. 30, 1850.



UNITED STATES PATENT OFFICE.

MARTIN R. DUDLEY, OF NEW ORLEANS, LOUISIANA.

IMPROVEMENT IN GRAIN-DRIERS.

Specification forming part of Letters Patent No. 7,321, dated April 30, 1850.

To all whom it may concern:

Be it known that I, MARTIN RUFUS DUDLEY, of the city of New Orleans, parish of Orleans, and State of Louisiana, have invented a new and useful manner of kiln-drying corn, wheat, and other grain, flour, meal, and other substances requiring the drying process by the application of certain principles and the combination of apparatus necessary for that purpose; and I do hereby declare that the following is a full and exact description thereof.

In the accompanying drawings, Figure 1 represents a longitudinal section of two cylinders of sheet-iron or other suitable material from twenty-four to thirty-six feet long and about forty inches diameter, placed in a furnace so constructed as to distribute the heat uniformly to all parts of the cylinders. The letters *a a a* represent the exterior cylinder, which is stationary.

b b b b represent the interior cylinder through which the corn, wheat, &c., is passed, and which revolves within the exterior cylinder. The substance to be dried is placed in the hopper *d*, passes through the interior cylinder, and is discharged at the spout *j*. The front end *b b* of the interior cylinder runs close up to the front head *y* of the exterior cylinder, and is kept there by the bearing *h* at the back end of the shaft. The back end of the interior cylinder *b' b'* is removed from the back head *x* of the exterior cylinder, so as to admit a free egress of the grain, &c., through pipe *j*, and also admit a free circulation of the heated air, as shown by arrows in Fig. 1, from the exterior into and through the interior cylinder and out of the escape-pipe *e*, carrying off the moisture. The heated air thus passing carries off all the moisture as fast as it rises, thereby preventing the grain, &c., from becoming steamed or cooked and greatly facilitating the drying process. *f* is a pipe through which air (sufficient to carry off the moisture) is forced by a common blower or fan. *c c* is the shaft to which the arms *g g g* are fastened, and turns the interior cylinder. *i* is a cog-wheel, to which the gearing is attached.

Fig. 2 represents the back head from the inside sectional view; the letters referring to the same parts as they do in Fig. 1.

Fig. 3 represents an inside sectional view of the front head *y*, the letters referring to the same parts as they do in Fig. 1.

Fig. 4 represents a section of the cylinders, showing the arms *g*, which connect the cylinder with the axle. The letters refer as in Fig. 1. The interior cylinder may have from eight to twelve flanges *q* on the inner surface passing directly through for the purpose of elevating and scattering the grain, &c.; also intermediate flanges placed in a spiral form to pass the grain, &c., through the cylinder. As this is a common device, a particular delineation is not deemed necessary. The exterior cylinder is shielded from immediate contact with the fire by an intervening arch *x'* of brick or other substance. There is also an arch *s* inclosing the cylinders above, with a space between them to permit the heat to pass all around the cylinders. By this arrangement the air which is forced by a blower into the outer cylinder passes along the whole length of the space between the cylinders, where it is sufficiently heated, and then returns back through the inner cylinder and the grains contained therein, carrying off the moisture with it, while at the same time it prevents the grain from being scorched by the direct action of the fire.

What I claim as new and useful in the foregoing, and desire to secure by Letters Patent, is—

The construction and arrangement of the apparatus as herein described, by which a stratum of air is forced into a case inclosing the grain-cylinder, where it protects the grain from the direct action of the heat from the fire and is there heated and conveyed through the grain so as to carry off the moisture therefrom, substantially in the manner and for the purpose set forth.

M. R. DUDLEY.

Witnesses:

J. J. GREENOUGH,
O. C. WILLIAMS.