

(No Model.)

C. L. HALL.
Coffee Roaster.

No. 236,888.

Patented Jan. 25, 1881.

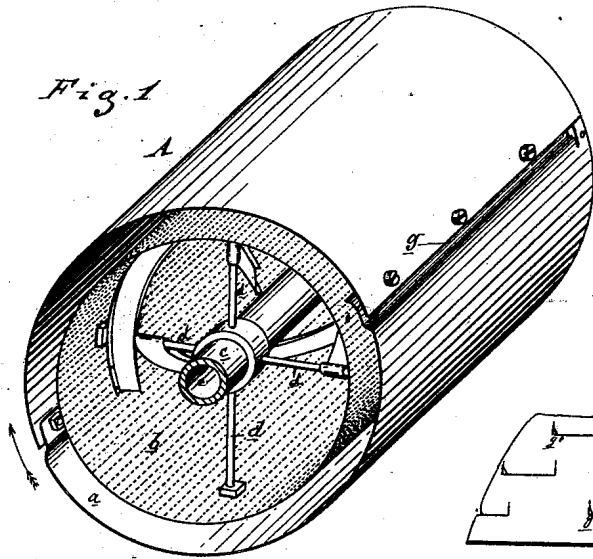


Fig. 2

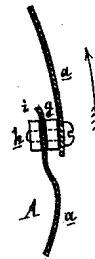


Fig. 5

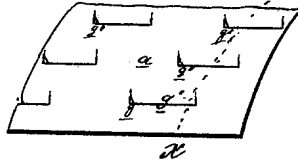


Fig. 6

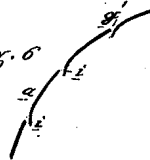


Fig. 3

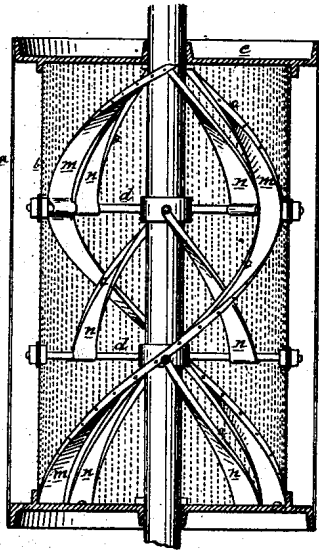
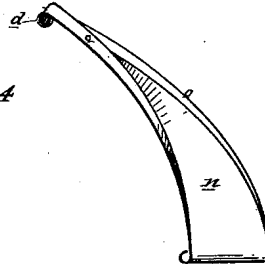


Fig. 4



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UNITED STATES PATENT OFFICE.

CASSIUS L. HALL, OF YPSILANTI, MICHIGAN, ASSIGNOR OF TWO-THIRDS TO SAMUEL W. PARSONS AND GEORGE W. PARSONS, OF SAME PLACE, ONE-THIRD TO EACH.

COFFEE-ROASTER.

SPECIFICATION forming part of Letters Patent No. 236,888, dated January 25, 1881.

Application filed August 30, 1880. (No model.)

To all whom it may concern:

Be it known that I, CASSIUS L. HALL, of Ypsilanti, Washtenaw county, Michigan, have invented an Improvement in Coffee-Roasters, of which the following is a specification.

The nature of my invention relates to new and useful improvements in the construction of coffee-roasters, by means of which more perfect work is done than is accomplished by the devices for a similar purpose, and by means of which the smoke and dust are removed by centrifugal force and air-current from the material under treatment.

The invention consists in the peculiar construction, combination, and operation of the parts, all as more fully hereinafter set forth.

Figure 1 is a sectional perspective of my improved roasting-cylinder. Fig. 2 is an enlarged detail. Fig. 3 is a central section of cylinder, showing the shaft and stirring-blades. Fig. 4 is a view of a stirring-blade. Fig. 5 is a plan of section of shell, showing a modification in which several punched slits are employed. Fig. 6 is a vertical section on line *x x*, Fig. 5.

In the accompanying drawings, which form a part of this specification, *A* represents a roasting-cylinder, consisting of the outside shell, *a*, the inner shell, *b*, hollow shaft *c*, radial stays *d*, cylinder-heads *e*, and stirring wings or blades *m n*, all constructed in the manner already well known, except as hereinafter described.

For the purpose of more effectually removing smoke and dust from the roasting material, I construct in the outside shell of my compound roasting-cylinder a slit, *g*, extending the whole length of the shell. This slit is formed by overlapping the sheet metal composing the outside shell, and interposing between the laps a screw, nut, or collar, *h*, as shown in Fig. 2. The inside lap may be turned inwardly and terminate in a lip, *i*; or, if preferred, the plate of the outer shell may be punched, so as to form a series of small slits with similar lips, as shown in Figs. 5 and 6. These openings form an exit for the dust and smoke, which, during the roasting process, will be thrown from the inner perforated shell,

b, into the annular space surrounding it, owing to the centrifugal force and to the air-current, which, during the rotation of the roasting-cylinder, is permitted to enter the hollow shaft, or through the center of the cylinder, and passes thence, through the roasting material and the perforations of the inner shell, into the annular space between the two shells, and is finally expelled through the slit or openings. To insure a more perfect expulsion, the slit forms a tangential passage from the annular space, its mouth being presented on the inside of the shell *b*, and in the direction of the rotation, while the lapping of the sheet metal or the lips will prevent the direct impinging of the smoke and flame on the inner shell, *b*, which incloses the roasting material.

By making the outside shell, *A*, in sections, any desired number of slits may be arranged, extending partially or the whole length of the cylinder.

To effect in a very efficient manner the stirring of the material while being roasted, I employ two sets of spiral wings. The outer set is composed of wings which are arranged to make a three-quarter turn around the shaft, and the inner set of the blades *n n*, each making a one-quarter turn, beginning at one head of the cylinder, extending to and between the radial studs *d*, and to the other head of the cylinder, and with a quarter-turn space between their inner ends. Each blade is provided with upturned flanges *o*, by means of which the material being treated is kept on the face of the blades, and by which the blades are stiffened. The outer flanges of the blades *m m* are bolted to the shell *b*. The inner and outer sets of wings convey the material, during the rotation of the cylinder, in opposite directions. The outer sets of wings form a continuous way from head to head, but each wing in the inner set is removed from the rest of its series a one-quarter turn, and they do not extend to the shaft, thereby leaving the central portion of the cylinder around the shaft unobstructed, as this series is secured to the radial stays.

In practice, the cylinder being filled with the material to be roasted and motion being ap-

plied, the centrifugal force will throw the material toward the shell *b*, where it is taken up by the outer sets of wings and conveyed to one end of the cylinder, where it is crowded
 5 onto the inner sets of wings, which convey it to the opposite head, and by crowding it against that head it will be thrown onto the outer set of wings again, and so on until the material is sufficiently roasted, when it may be easily
 10 discharged through a disclosed opening in the head.

What I claim as my invention is—

1. In a roasting-cylinder, the combination, with the inner cylinder, *b*, provided with the
 15 radial arms *d*, of the outer flanged spiral blades, *m*, each secured at its ends to the cylinder-heads, and forming a continuous helix around the shaft of the shell, and adjoining its inner wall, and the inner flanged spiral blades, *n*,
 20 each making a quarter-turn around the shaft, the end blades extending each between a cylinder-head and a radial arm, and the intermediate inner flanged blades extending between the radial arms, substantially as described,
 25 and for the purpose set forth.

2. The combination, with the perforated inner cylinder, *b*, of the outer cylinder, *A*, pro-

vided with a tangential opening or openings from its interior, substantially as described, and for the purpose set forth. 30

3. The combination, with the perforated inner cylinder, *b*, of the outer cylinder, *A*, provided with a slit, *g*, formed by overlapping the sheet metal composing the outer cylinder, and forming the inwardly-turned lip, *i*, and inter-
 35 posing between the laps the nut *h*, substantially as described, and for the purpose set forth.

4. In a roasting-cylinder, the sectional wings *m n*, each composed of a face and upturned
 40 flanges, substantially as and for the purposes set forth.

5. In a roasting device, the combination of the outer shell, provided with a tangential exit, the inner shell, hollow shaft, radial stays,
 45 heads, and two sets of segmental wings spirally arranged, with intervals between them, and each provided with upturned flanges, substantially as described.

CASSIUS L. HALL.

Witnesses:

H. S. SPRAGUE,
 F. J. SCOTT.