June 11, 1929.

A. P. GROHENS

1,716,920

BURNER FOR ROASTERS

Filed Sept. 10, 1928

Fig. 1

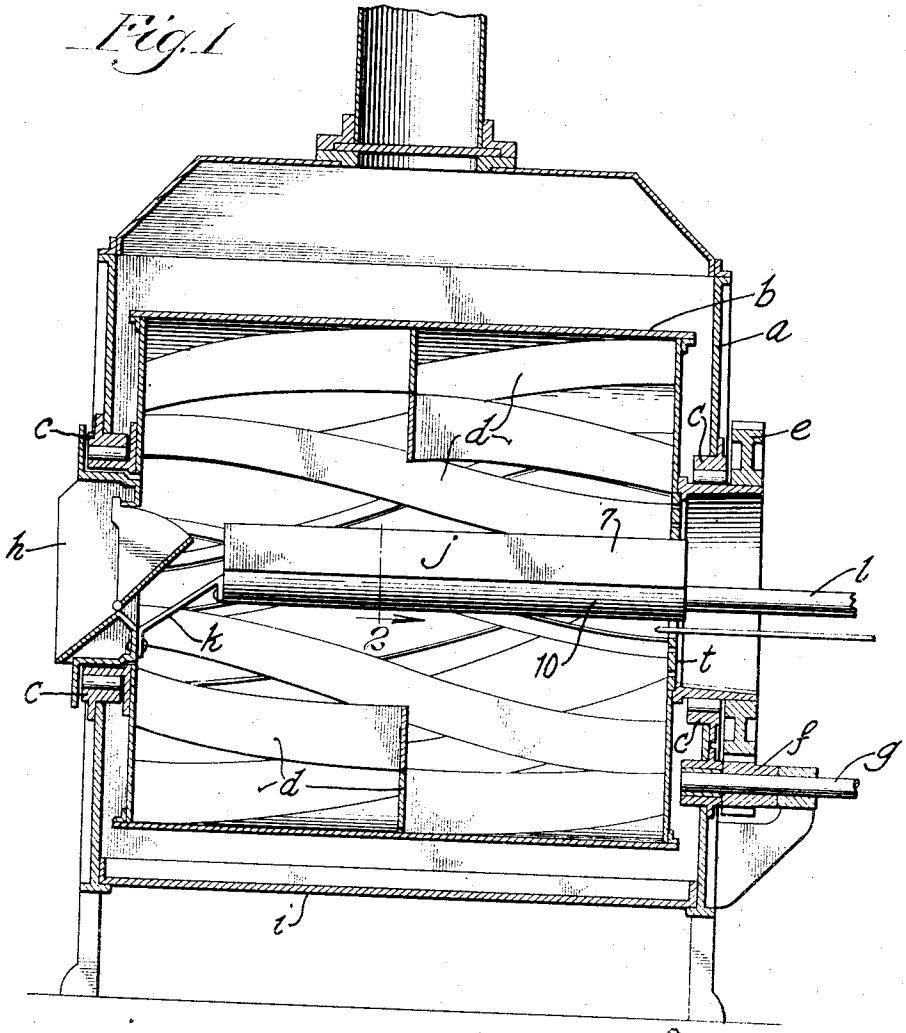


Fig. 2

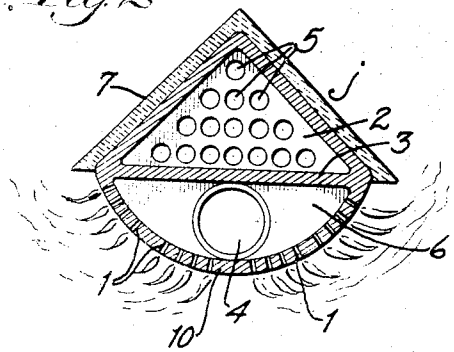
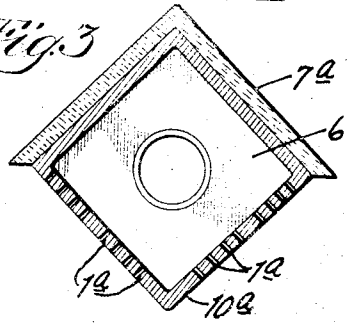


Fig. 3



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UNITED STATES PATENT OFFICE.

ALBERT P. GROHENS, OF MARSHALL, MICHIGAN.

BURNER FOR ROASTERS.

Application filed September 10, 1928. Serial No. 304,972.

This invention relates to improvements in burners for roasters, and more especially burners for roasters of the type described in my prior patent, No. 1,515,385, of November 11, 1924, especially designed for roasting coffee, cereals and similar products.

The burner is here shown as designed for use with gas as a fuel, but it is obvious that any suitable fuel may be used.

One of the features of the invention is to provide a burner so designed that the product being roasted will not come in direct contact with the hottest part of the flame. The burner is designed, however, so that there is very little, if any, loss of heat, the hot gases passing through the product as it is circulated in the roaster, thus producing quick and efficient roasting.

Another feature of the invention is to provide a burner having its upper surface cooled so that the product coming in contact with such upper surface will not become unduly scorched.

In that form of the device shown in the accompanying drawings, Fig. 1 is a vertical section view; Fig. 2 is a view taken as indicated by the line 2 of Fig. 1; and Fig. 3 is a view similar to Fig. 2, showing a modified form.

As shown in the drawings, the roaster consists of a casing *a*, provided with the usual insulating walls, mounted on a frame, and containing a revolving perforated drum *b* which is journaled at its ends in bearing *c*, carried by the frame, and is provided with lifting blades *d*. The drum carries a gear *e* at one end, which is driven by a pinion *f* mounted on the shaft *g*, which, in turn, is adapted to be driven by a motor or other source of power (not shown).

Mounted on the front of the casing and projecting into the drum, is the usual chute *h* for feeding and discharging the product to be roasted. Below the drum, is a chaff-pan *i*.

In the center of the drum is burner *j*, carried at one end by the support *k*, attached to the chute *h*, and connected at the other end to the gas feed pipe *l*. A stationary perforated plate *t* is mounted over the projecting end of the burner, thus closing the opening at this end and at the same time permitting observation of the burner flame.

In the form of burner shown in Fig. 2, the bottom is rounded, as indicated by 10, and provided with a series of narrow radial slots 1, which direct the flames downwardly and outwardly. The upper part of the burner is gable-shaped. 3 indicates a longitudinal partition in the burner, providing an air chamber 2 above said partition and a gas chamber 6 below the same. The air chamber 2 serves as a cooling medium for the burner, thus preventing scorching of the product as it falls on the upper surfaces of the burner. An opening 4 is provided in one end of the gas chamber 6 for attaching the gas feed pipe *l*; and openings 5 are provided in the ends of the air chamber to permit free circulation of air.

In the modified form shown in Fig. 3, the bottom is angular, as indicated by 10^a, instead of rounded, and provided with slots 1^a similar to the slots 1 in the preferred form. In the form shown in Fig. 3, the partition 3 is omitted so that there is not an air chamber separate from the gas chamber; but instead, this form of burner has an unusually large gas chamber 6, which has its upper surfaces covered with any suitable refractory or insulating material 7^a. The burner shown in the preferred form also preferably has its upper surfaces covered with such material as indicated by 7.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction, arrangement and operation may be made without departing from the spirit and scope of the invention disclosed in the appended claims, in which it is my intention to claim all novelty in my invention as broadly as possible, in view of the prior art.

What I claim as new, and desire to secure by Letters Patent is:

1. In a device of the character described, a rotatable drum adapted to contain material to be roasted, and a burner tube substantially axially arranged within the rotatable drum, said burner tube being provided with a longitudinal partition to provide an air chamber in the upper part thereof and a fuel chamber in the lower part thereof, said fuel chamber being provided with flame openings.

2. A device as claimed in claim 1, in which the upper surfaces of the burner tube are slanting.

3. A device as claimed in claim 1, in which the openings in the fuel chamber are adapted to direct flames downwardly and outwardly.

4. A device as claimed in claim 1, in which the air chamber is provided with air circulation openings in its ends.

5. A device as claimed in claim 1, in which the upper surfaces of the burner tube are provided with insulating material.

6. In a device of the character described, a rotatable drum adapted to contain material to be roasted, a burner tube substantially axially arranged within the rotatable drum, said burner tube being provided with openings in its lower surface adapted to direct flames downwardly and outwardly, and insulating material covering the upper surfaces of the burner tube.

In witness whereof, I hereunto set my hand this 30th day of August, 1928.

ALBERT P. GROHENS.