

July 17, 1934.

C. E. BOWERS

1,966,945

GRATE

Filed Oct. 29, 1932

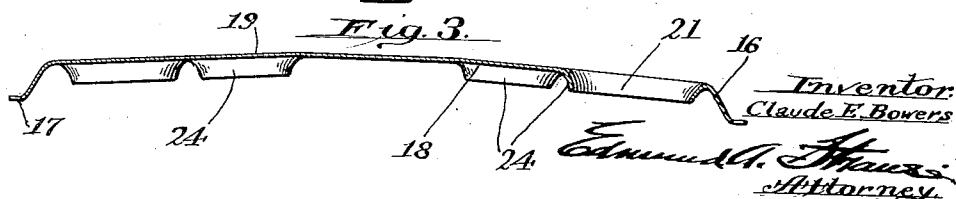
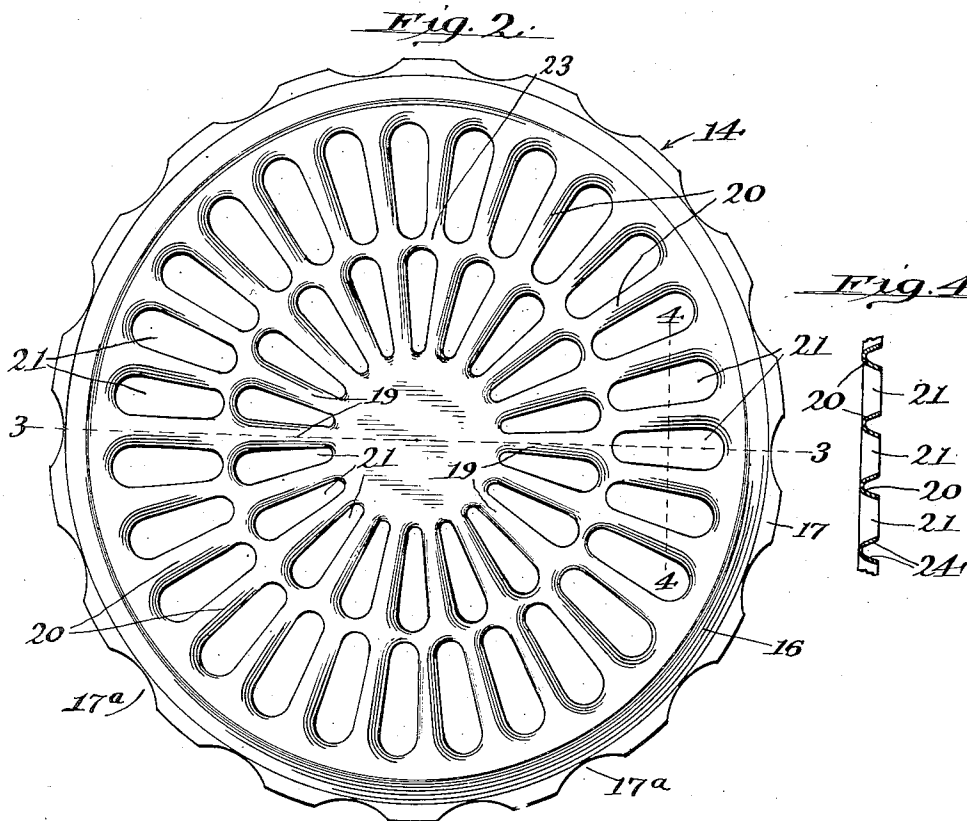
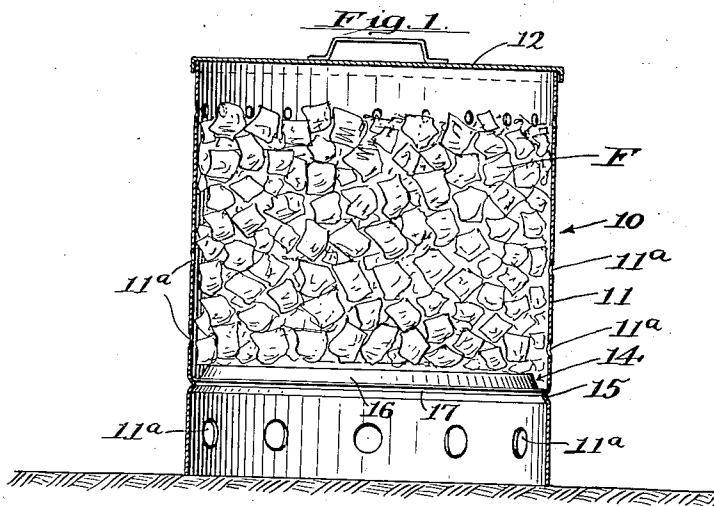
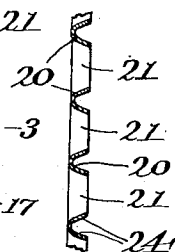


Fig. 4.



Inventor:
Claude E. Bowers

Edmund A. Maux
Attorney.

UNITED STATES PATENT OFFICE

1,966,945

GRATE

Claude E. Bowers, Los Angeles, Calif.

Application October 29, 1932, Serial No. 640,150

1 Claim. (Cl. 126—152)

This invention relates to a grate particularly adapted for use in orchard heaters or the like, in which the heat is generated therein by burning of solid fuel such as carbon briquets, coke or the like.

Cast iron grates have been heretofore employed for the above stated purpose. Such grates, however, are not only heavy, but often become damaged or broken.

Several attempts have been made to provide a sheet metal grate of this character, but without success, for the reason that they became warped or distorted when subjected to excessive heat.

The object of the present invention is to provide a sheet metal grate which will not warp or become distorted when subjected to heat.

Another object is to provide a grate of the character described in which the grate bars form air pockets which serve to cool the same.

A further object is to provide a single piece sheet metal grate having a plurality of slots or draft openings formed therein with the portions of the metal therebetween bent downwardly to form cooling flanges.

Other objects and advantages will be apparent from the following description, reference being had to the accompanying drawing, in which:

Fig. 1 is a vertical section taken through an orchard heater equipped with the improved grate.

Fig. 2 is a top plan view of the improved grate.

Fig. 3 is a section taken on line 3—3 of Fig. 2.

Fig. 4 is a detail section taken on line 4—4 of Fig. 2.

Referring more specifically to the drawing, 10 generally designates a conventional orchard heater which consists of a cylindrical casing 11 and removable cover or lid 12.

The grate of the present invention designated at 14 is adapted to be mounted in the casing and rests on a bead or internal flange 15 formed in the side wall of the casing, and serves to support a body of solid fuel in the form of carbon briquets or coke, indicated at F.

Grate 14 is formed from a circular blank of sheet metal die stamped or otherwise bent into the shape shown and consists of a bevelled side wall 16, a lateral flange 17 and a slightly tapered top 18.

Formed in the top is an inner and outer row

of radially disposed grate bars designated at 19 and 20 respectively, between which are formed draft openings 21 in staggered relation to each other, the metal between the inner end of said openings forming a circular reinforcing rib indicated at 23.

Grate bars 20 and 21 are substantially channel shaped in cross section and are formed by cutting openings for the slots, then pressing the portions of the metal therearound downwardly as indicated at 24.

The flange 17 is adapted to engage the bead 15 and has a plurality of arcuate notches or recesses 17a formed therein while the casing has a plurality of openings 11a therein above and below the grate for circulation of air there-through.

It will be particularly noted that due to the shape and arrangement of the grate bars, the entire structure is substantially reinforced, also that the flanges of said bars form an air trap or pocket therebetween which tends to cool and thereby effectively prevents warping of the same when subjected to heat.

While the grate is preferably provided with an inner and outer row of radially disposed draft openings and grate bars as above described, it will be understood that a single row may be substituted therefor.

Further, the openings may be arranged in parallel relation with the surrounding metal bent downwardly to form cooling flanges and air pockets in the manner above described.

From the foregoing it will be seen that the grate is of comparatively light weight, yet of strong and rigid construction and may be easily and cheaply produced.

I claim:

A grate formed from a single circular blank of sheet metal, said grate comprising a slightly convex top surface and a downwardly bevelled side wall terminating in a lateral flange, the top wall having an inner and an outer row of radially disposed draft openings therein with grate bars therebetween, downwardly extending flanges surrounding said draft openings whereby said grate bars are substantially channel shape in cross section, the flanges thereof forming an air trap, cooling means for the grate and a reinforcement for the entire structure.

CLAUDE E. BOWERS.