

(No Model.)

C. GORTON.
AGRICULTURAL BOILER.

No. 550,169.

Patented Nov. 19, 1895.

Fig 1

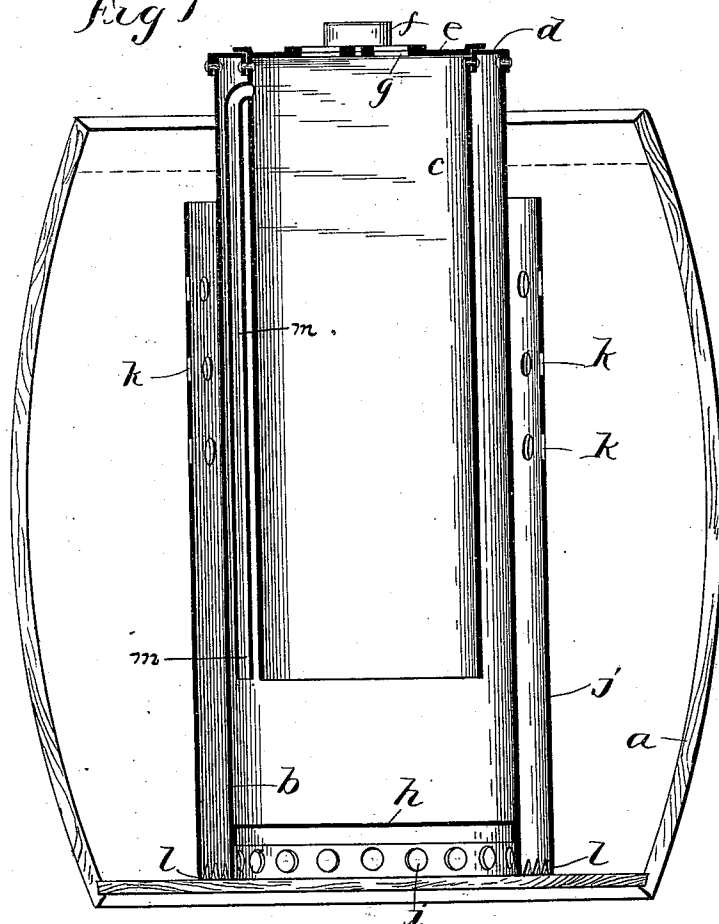
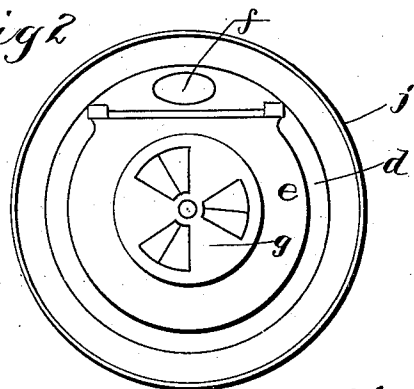


Fig 2



WITNESSES:

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AGRICULTURAL BOILER.

SPECIFICATION forming part of Letters Patent No. 550,169, dated November 19, 1895.

Application filed May 29, 1893. Serial No. 475,955. (No model.)

To all whom it may concern:

Be it known that I, CHARLES GORTON, of New York, in the county and State of New York, have invented certain new and useful
5 Improvements in Agricultural Boilers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the
10 same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in feed-cookers or agricultural boilers.

The invention consists in certain novel features of construction and in combination of parts more fully described hereinafter, and particularly pointed out in the claim.

Referring to the accompanying drawings, Figure 1 is a longitudinal vertical sectional view showing the heater placed in a barrel. Fig. 2 is a top plan view of the heater.

In the drawings, the reference-letter *a* indicates a barrel, cask, or tank, or any other suitable receptacle to contain water, preferably open at the top. The heater is placed in the barrel, so as to rest on the bottom thereof, and extended above the water therein. The heater
30 can be made of and preferably is composed of sheet-metal, the furnace fire-pot or combustion-chamber *b* thereof being preferably cylindrical in form and arranged to rest on the bottom of the barrel and extend out through
35 the open top thereof above the barrel.

The bottom *h* of the fire-pot is located a distance above the lower edges of the sides thereof. By having the bottom *h* thus elevated a water-space is formed between the bottom of the fire-pot and the bottom of the barrel or other vessel. The depending sides of the heater are provided with the lateral openings
40 *i* beneath the bottom *h*, so that the water in the tank or barrel has free access and can circulate freely beneath the bottom *h* of the fire-pot, thereby utilizing the heat radiated through said bottom.

A concentric circular partition *c*, constituting a fuel magazine or feeder, depends from the top *d* of the heater down into the same to
50 a point above the bottom thereof, leaving the

annular space around the magazine within the heater or fire-box. The top of the said annular space is closed by the cover *d*, securely fastened to the upper edge of the heater and
55 to said magazine. The top of the magazine is closed by a suitable door *e*, provided with a damper *g*. A smoke outlet or uptake *f* is provided from the annular space around the partition *c*. It will thus be seen that when
60 the fuel, of any suitable nature, is inserted through the opening closed by the cover *e* and the fire is kindled in the heater the draft is down through the damper *g* and through the magazine and then up through the annular
65 space around said magazine and out through the uptake *f*, a downdraft-heater being thus provided. The draft can be controlled to a nicety by the damper *g*. The fire in the heater thoroughly heats the water in
70 the tank or barrel to the desired temperature and cooks or heats the vegetables or other material located therein as the heat is forced out against the inner surface of the wall of the heater in passing up around the magazine.

In order to insure a perfect draft to the fire, even when the magazine is clogged with the fuel, I provide a pipe *m*, at its upper end opening into the upper portion of the magazine
80 beneath the damper and extending down through the space within the heater and around the magazine with its lower opened end just above the fire and in about the same plane with the open end of the magazine, and
85 passing into the magazine, thus has a free and uninterrupted passage to the fire when the magazine is filled or clogged with fuel, so that a plentiful supply of air is provided to maintain perfect combustion.

In order to prevent the material in the barrel coming in contact with the sides of the heater, and also in order to promote perfect circulation in the heater, an annular partition or cylinder *j* is located in the barrel and
90 a distance from and around the outer wall of the heater to leave the annular water-space around the heater. This partition *j* preferably does not extend above the water-line in the tank. The lower part of said circular
95 partition *j* is provided with suitable transverse openings *l*, preferably formed by notches in the lower edge of the partition resting on

the bottom of the barrel or tank. The upper portion of partition *j* is also provided with suitable openings *k*. It will thus be seen that when the fire is started in the heater the water in the space between the heater and the partition *j* becomes heated and moves upward, passing out through the openings *k* and over the top edge of the partition *j*, thereby drawing in the cooler water from the outer partition of the barrel through the openings *l* up into the space within the partition *j*, thereby maintaining a perfect circulation in the barrel and equally heating all the water therein. It should also be noted that this cylinder *j* keeps the vegetables or feed, or whatever material there may be in the water, out of contact with the hot surface of the heater, thereby preventing the material being burned by engaging the hot surface of the heater.

20 Having thus fully described my invention,

what I claim as new, and desire to secure by Letters Patent of the United States, is—

The submerged heater consisting of the fire pot arranged to extend above the water in the heater, the concentric magazine depending in said fire pot from the top thereof forming the space around said magazine closed at the top, means for closing the top of the magazine constructed to admit air into the same, and the air pipe at its upper end opening into the upper portion of the magazine and extending down between said magazine and the wall of the fire pot, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CHARLES GORTON.

Witnesses:

JAMES D. FESSENDEN,
JOSEPH P. CASEY.