G. A. HOLLENBECK.

GRATE FOR HEATING APPARATUS.

APPLICATION FILED MAY 21, 1918.

1,302,164.

Patented Apr. 29, 1919.

2 SHEETS—SHEET 1.

FIG. 2.

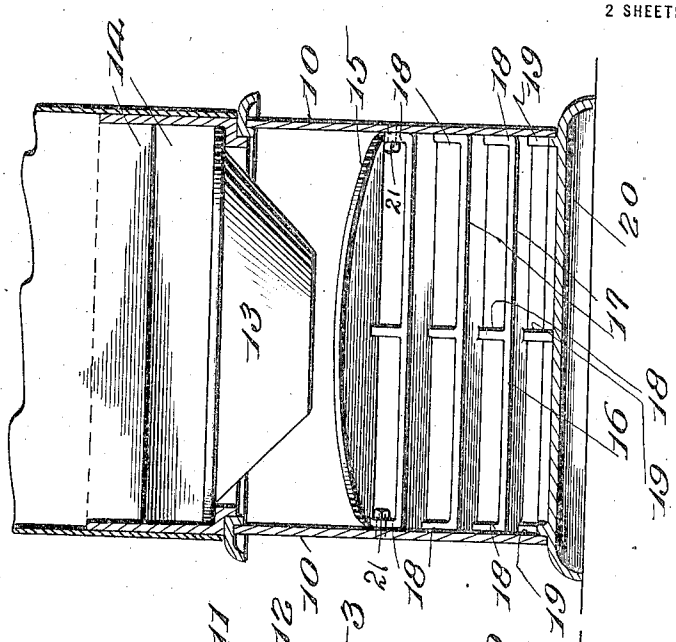
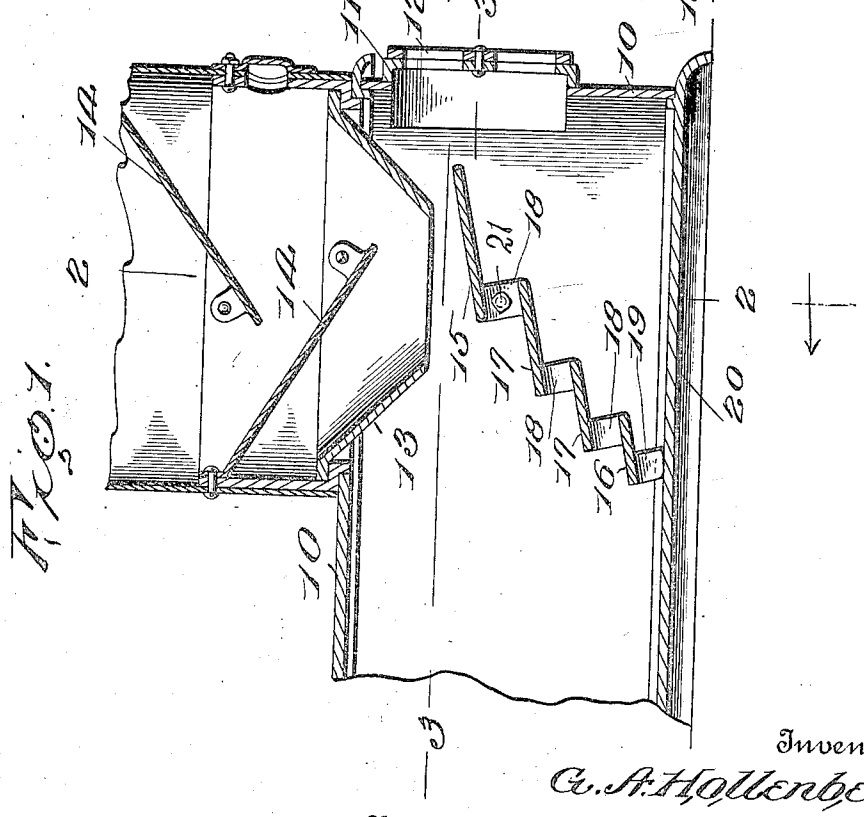


FIG. 1.



Inventor

G. A. Hollenbeck

By

Lacey & Lacey, Attorneys

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2 SHEETS—SHEET 2.

Fig. 2.

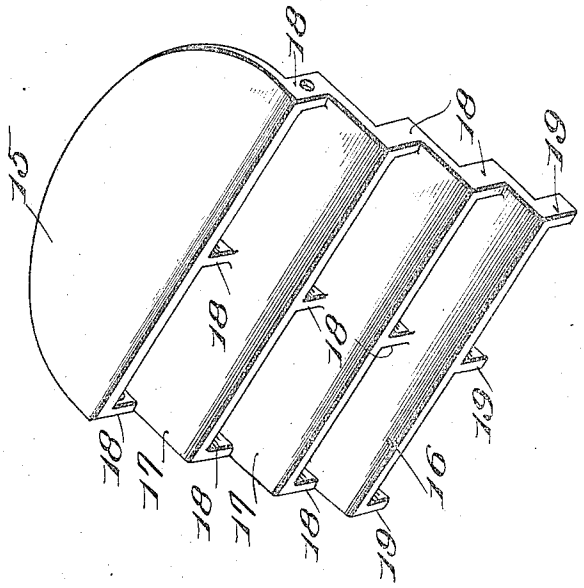
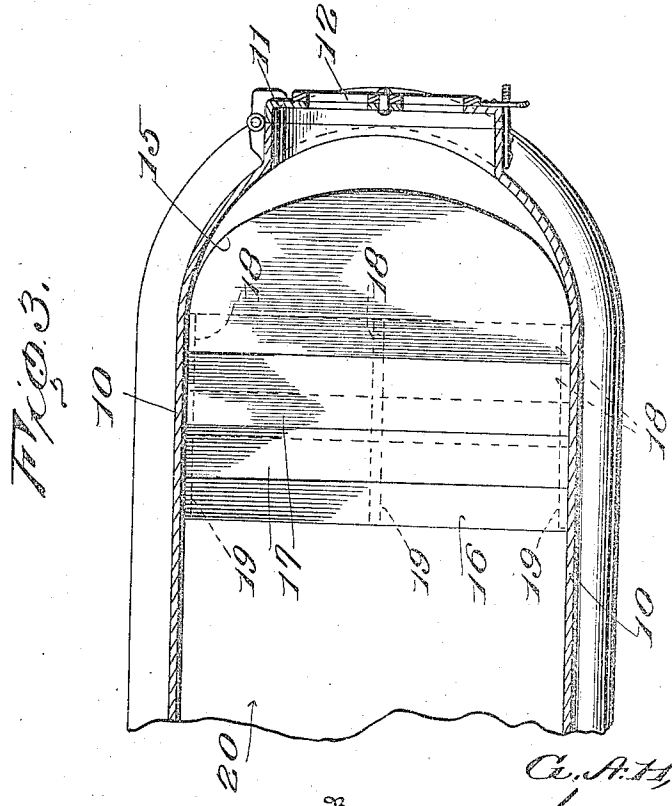


Fig. 3.



Inventor

C. A. Hollenbeck

By Lacey & Lacey, Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE A. HOLLENBECK, OF SAULT STE. MARIE, MICHIGAN.

GRATE FOR HEATING APPARATUS.

1,302,164. Specification of Letters Patent. Patented Apr. 29, 1919.

Application filed May 21, 1918. Serial No. 235,827.

To all whom it may concern:

Be it known that I, GEORGE A. HOLLENBECK, a citizen of the United States, residing at Sault Ste. Marie, in the county of Chippewa and State of Michigan, have invented certain new and useful Improvements in Grates for Heating Apparatus, of which the following is a specification.

This invention relates to improvements in the grates of heating stoves, furnaces, generators and the like, more particularly to devices of this character employed for burning special forms of fuel, and has for one of its objects to improve the construction and increase the efficiency and utility of devices of this character.

With these and other objects in view, the invention consists in certain novel features of construction, as hereinafter shown and described and then specifically pointed out in the claims; and in the drawings illustrative of the preferred embodiment of the invention—

Figure 1 is a sectional side elevation of the fire box portion of a heating stove with the improvement applied,

Fig. 2 is a front elevation of the parts shown in Fig. 1 with the fire box and a portion of the fuel reservoir in section on the line 2—2 of Fig. 1,

Fig. 3 is a plan view of the improved device with the fire box portion of the stove in section on the line 3—3 of Fig. 1,

Fig. 4 is a detached perspective view of the improved grate.

The improved grate may be adapted without material structural change to the fire boxes of heating stoves, furnaces, steam or other generators or the like, but for the purpose of illustration is shown applied to the base or fire box 10 of a heating stove, the fire box having a door 11 communicating with the ash pit, and provided with a perforated air inlet 12. The stove selected to illustrate the application of the device includes a cone shaped feed hopper 13 and inclined baffle plates 14, to retard the passage of the fuel to the grate. The improved grate is designed more particularly for burning fine or pulverized fuel, and the hopper 13 provides an efficient means for equally and uniformly feeding the fuel to the grate.

The improved grate includes an upper member or plate 15, a lower member or plate 16 and a plurality of intermediate plates 17, the plates being disposed between the opposite side walls of the fire chamber. The plates are arranged in step-like order and overlap each other at their inner edges and are separated at their ends and at one or more intermediate points by webs 18. The plates are thus spaced at uniform distances and are maintained in their spaced relation by the webs. The webs of the lower plate 16, represented at 19, form supports for the forward end of the grate and bear upon the bottom member 20 of the fire chamber. The end webs 18 of the upper plate 15 are pierced to receive holding devices 21 by which the grate is attached to the side walls of the fire chamber. The plates are inclined as shown in Fig. 1 toward the smoke exit end of the fire chamber. The plates 16 and 17 gradually decrease in width toward the discharge end as shown in Fig. 2 so as to accelerate the passage of fuel at said discharge end, the upper plate being located immediately below the discharge opening of the feed hopper 13. By this arrangement the fuel discharged from the magazine through the hopper 13 falls upon the upper plate 15 and is thence automatically fed over the remaining plates one after the other, the fuel being exposed to the air passing between the plates during its passage over said plates.

The slope or incline of the plates will be sufficient to permit the fuel to travel slowly thereover, and subject to the influence of the air passing through the inlet 12. The fuel falling in a thin uniform stream is in the best possible condition for the action of the air, hence the formation of smoke is practically eliminated as combustion is complete. Thus great economy in the consumption of the fuel results, and the accumulation of ashes and other unconsumed particles very materially reduced.

Having thus described the invention, what is claimed as new is:

1. A grate comprising a plurality of plates arranged in steps decreasing in width toward the discharge end, the adjacent edges of the plates lapping and being disposed in spaced relation.

2. The combination with a fire chamber, of a grate formed of a plurality of plates extending between the walls of the fire chamber and arranged in steps decreasing in width toward the discharge end of said grate, the adjacent edges of the plates lapping and being disposed in spaced relation and connected by vertical webs.

In testimony whereof I affix my signature.

GEORGE A. HOLLENBECK. [L. S.]

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."