

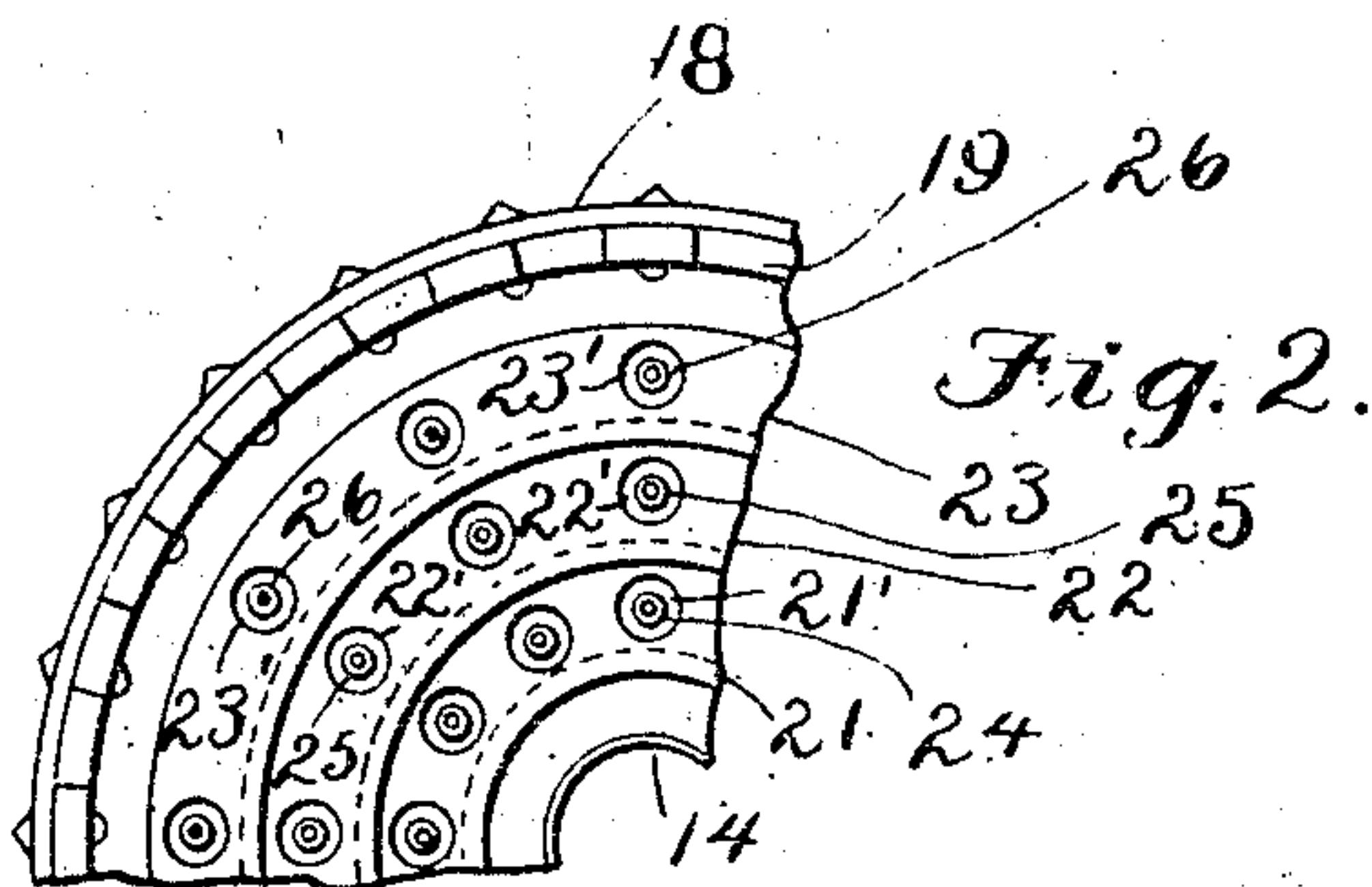
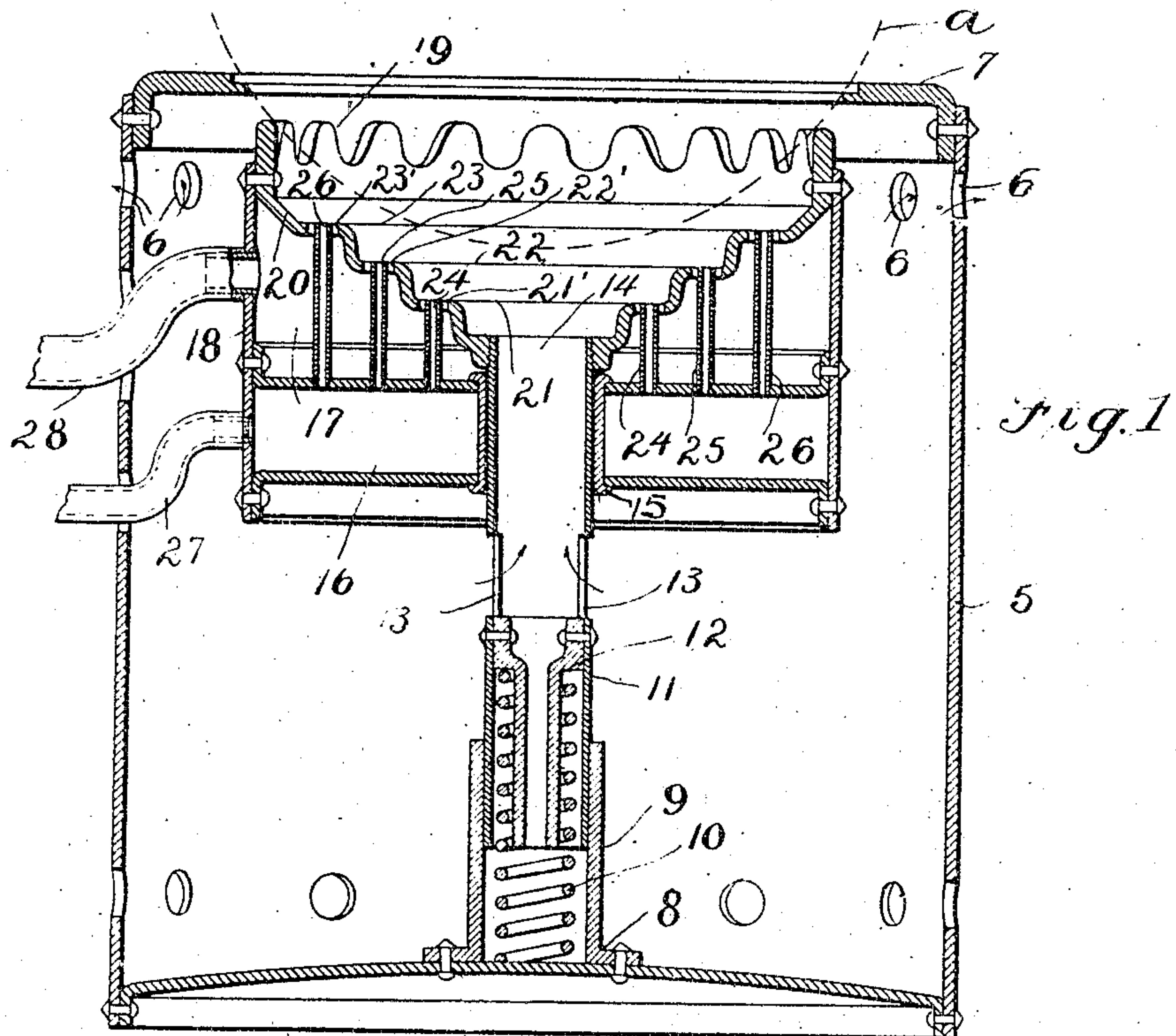
No. 837,571.

PATENTED DEC. 4, 1906.

B. F. JACKSON.

GAS FURNACE.

APPLICATION FILED MAR. 16, 1906.



Witnesses:
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By this order.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. JACKSON, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO FRANK A. HAWES, OF BOSTON, MASSA-
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GAS-FURNACE.

No. 837,571.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed March 16, 1906. Serial No. 306,326.

To all whom it may concern:

Be it known that I, BENJAMIN F. JACKSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Gas-Furnaces; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to improvements in hydrocarbon-gas furnaces which are particularly designed to heat material supported in a suitable utensil.

One object of the invention is to so construct the furnace-burner that combustion of the gases shall take place adjacent to the convex bottom of the utensil sustained above the burner.

Another object of the invention is to so construct a burner of this nature in which hydrocarbon gas is designed to be burned that a large supply of air may be delivered to the products of combustion to be largely consumed therewith.

Another object of the invention is to so construct a hydrocarbon-burner for furnaces that air may be supplied to the products of combustion.

Other objects of the invention will hereinafter be more fully disclosed.

The invention consists in such novel features of construction and combination of parts as shall hereinafter be more fully described, and pointed out in the claim.

Figure 1 represents a vertical sectional view of the improved furnace. Fig. 2 represents a partial plan view of the burner.

Similar characters of reference designate corresponding parts in both figures.

As shown in the drawings, in its preferred form 5 indicates a casing of any usual construction and preferably having the air-outlets 6 6 near the top 7, which is preferably supplied with an opening in which a utensil of any well-known shape and structure, of which *a* indicates the bottom, may be sustained.

Within the casing 5, and preferably axially disposed with relation to the opening in the top 7, is the pedestal 8, having the socket 9, furnished with the spring 10. Slidably mounted in the socket 9 is the tubular member 11, having the shoulder 12, bearing on the spring 10, the inlet-openings 13 13, and

the open upper end 14, which is secured to or forms part of the burner-casing 15. This burner-casing has the gas-chamber 16 and the air-chamber 17, the outer wall 18 of which has the serrated upper edge 19. The upper wall 20 of the air-chamber 17 is formed as a concavity in which this wall is preferably given the shape of a series of annular steps 21 22 23 of different diameters and arranged at different heights between the open end 14 of the member 11 and the upper edge 19 of the outer wall 18. In these steps 21 22 23 are formed series of circular openings 21', 22', and 23', in which the upper ends of the gas-supply tubes 24, 25, and 26, secured at their lower ends in perforations in the wall of the gas-chamber, are axially positioned.

Gas is supplied to the gas-chamber 16 through the pipe 27, and air under pressure is delivered to the chamber 17 through the pipe 28. This air passing through the openings 21', 22', and 23' acts to draw with it gas from the open ends of the respective gas-supply tubes, which becomes mixed with the air and when ignited burns freely. When a utensil is located above the burner, as at *a*, the mixed air and gas under combustion passes upward and out from between the utensil *a* and the upper edge 19 of the burner, thus creating a draft which draws additional air through the openings 13 13 and the open end 14 of the member 11 and over the points of combustion of the several streams of gas issuing from the tubes 24, 25, and 26, whereby this additional supply of air is raised in temperature before reaching such points of combustion.

By the use of the concave shape of the upper portion of the burner the heat is more closely confined and applied to the utensil *a*, and the points of combustion can be arranged at approximately the correct distance from the arc of the utensil's bottom to secure the most complete combustion of the gases and the most efficient application of the heat.

When a utensil having a deeper bottom than that shown at *a* is used, which is often the case, the spring 10 is designed to yield under the weight of said utensil and its contents, thus permitting the downward movement of the utensil until further movement is prevented by the larger diameter of the utensil coming into contact with the opening

in the top 7 of the casing, the burner thus being designed to accommodate itself to the shape and proportions of the utensil.

Having thus described my invention, I
5 claim as new and desire to secure by Letters Patent—

In a furnace a hydrocarbon-burner comprising a central tubular air-inlet, gas and air chambers embracing said inlet, the upper
10 wall of the air-chamber being concave and having a series of annular steps having open-

ings, and a series of gas-delivery pipes communicating with the gas-chamber and having their upper ends located in said openings as and for the purpose described.

In testimony whereof I affix my signature
15 in presence of two witnesses.

BENJAMIN F. JACKSON.

Witnesses:

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