

959,244.

Patented May 24, 1910.

2 SHEETS—SHEET 1.

Fig. 2.

Fig. 1.

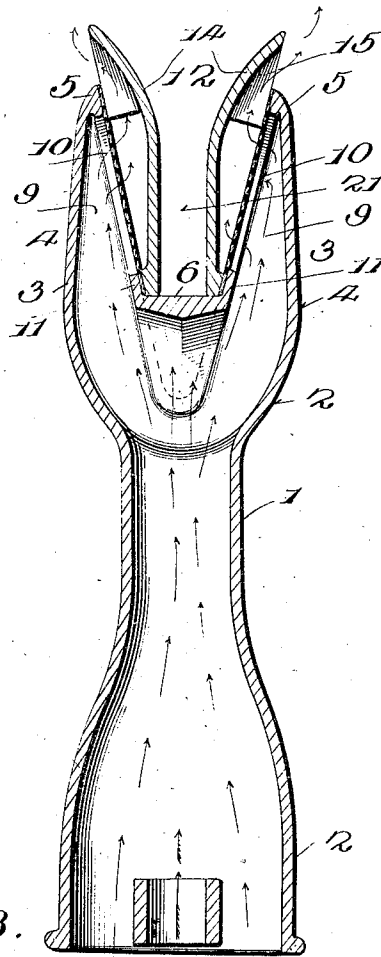
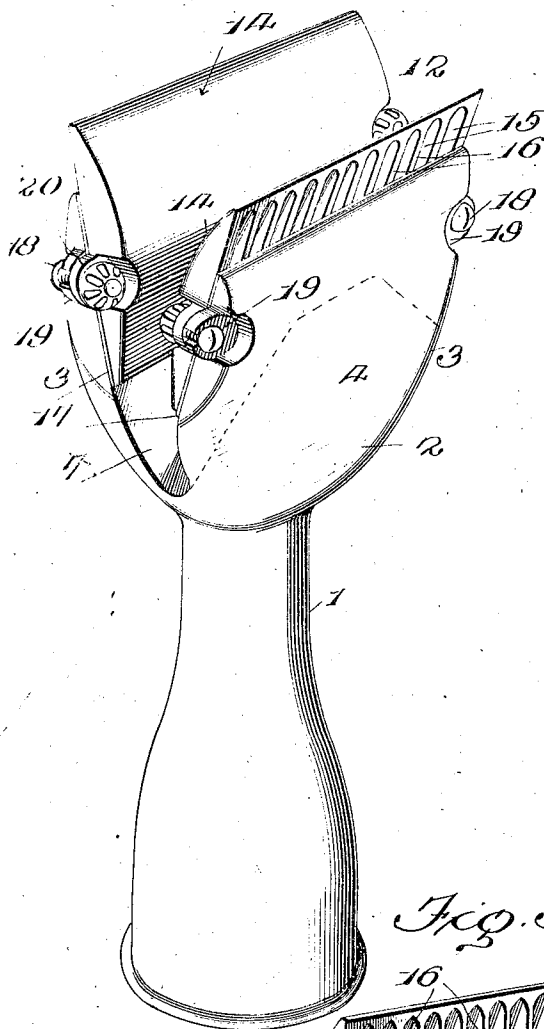
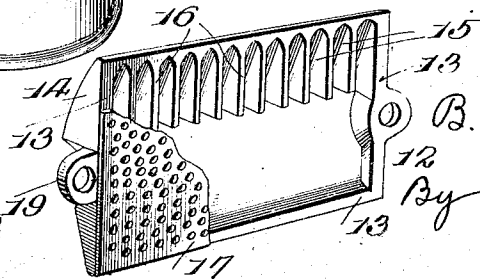


Fig. 3.



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GAS BURNER.
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2 SHEETS—SHEET 2

Fig. 4.

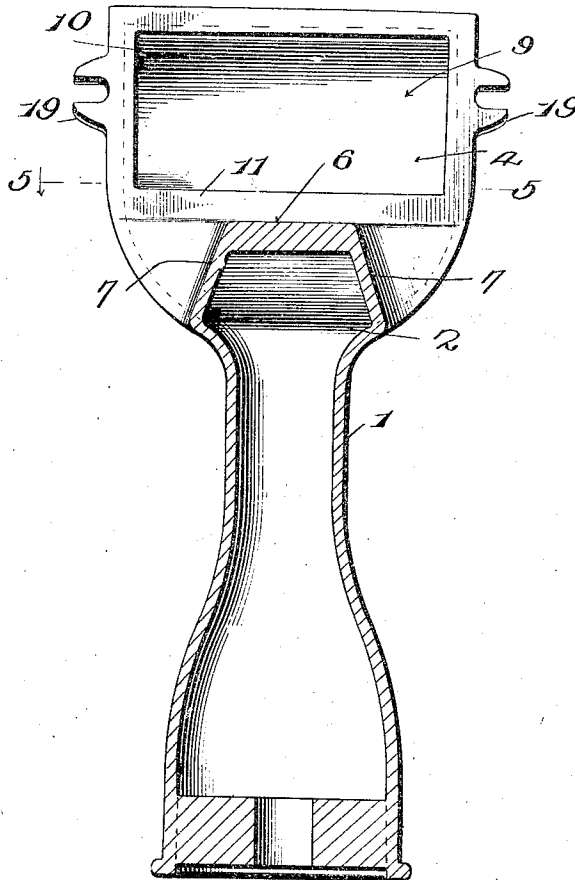
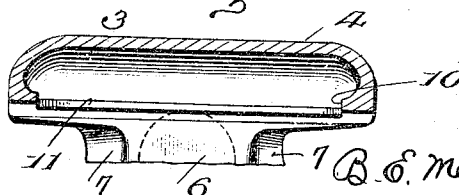


Fig. 5.



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UNITED STATES PATENT OFFICE.

BENJAMIN E. MEACHAM, OF LORAIN, OHIO, ASSIGNOR TO AMERICAN STOVE COMPANY,
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GAS-BURNER.

959,244.

Specification of Letters Patent.

Patented May 24, 1910.

Application filed October 13, 1909. Serial No. 522,450.

To all whom it may concern:

Be it known that I, BENJAMIN E. MEACHAM, a citizen of the United States, residing at Lorain, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Gas-Burners, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in gas burners of the Bunsen type, which is especially intended for use in instantaneous water heaters, but may be used in other connections.

The object of the present improvement is the construction of a burner of perfect combustion and large heating capacity; that will not backfire; that will direct its flame and heat directly upon the object to be heated, and to protect the flame check from excess water and overheating.

The improved burner is also particularly intended for use in groups, and a further object of the invention is to so construct it that the dropping condensation from a water coil or chamber above will not splash from one burner into the openings of adjacent burners.

A further object of the invention is to so construct the burner that any dripping condensation will not only not splash from one burner into an adjacent one, but to advantageously utilize the dripping condensation for cooling the cap plates of the burner.

In the accompanying drawing: Figure 1 is a perspective view of my improved burner. Fig. 2 is a transverse vertical central sectional view through the burner. Fig. 3 is a detached interior perspective view of one of the burner caps with a portion of the flame check in position. Fig. 4 is a vertical section of the burner at right angles to Fig. 2, the burner cap being omitted. Fig. 5 is a horizontal section on the dotted line 5-5 of Fig. 4.

The present improved burner produces two separate flames, and is therefore a duplex-flame burner, which has the advantages hereafter particularly pointed out.

In carrying out the present invention, a tubular portion 1 is used, the lower end 2 of which is enlarged for the ordinary type of gas and air mixer. The present improvement consists in providing the tube, with a

head 2 divided to form two substantially parallel arms 3. These arms are enlarged laterally, having outer closed walls 4, which are approximately vertical, and having their upper ends turned inward to form the convex surfaces 5, for a purpose to be explained hereinafter. The head has a straight transverse closed wall 6, at the bottom of and between said arms 3, and this wall preferably has inclined ends 7, and the straight central portion 6. These arms form two approximately parallel supply chambers 9, and these chambers have openings 10 which are substantially co-extensive with the area of the arms above the straight portion 6 of the wall 6. As here shown, these openings are preferably rectangular in shape, and are surrounded by a marginal wall 11 (Fig. 4).

Convex cap-plates 12 are applied to and form inner walls for the openings 10 and chambers 9, the marginal edges 13 of the caps coinciding with the corresponding marginal edges of said openings 10. These cap plates project beyond the arms 3, with their inner surfaces convexed as at 14, and their outer faces provided with a plurality of parallel grooves 15 formed therein, forming the parallel walls 16. These walls and grooves extend inward beyond the outer ends of the arms 3. A suitable flame check plate 17, of perforated metal or wire gauze is placed between the marginal edges of each cap plate and the openings 10, and each check plate is of a size to extend entirely over its opening 10 and thus form a flame check wall between said opening 10 and the concaved plate at that point. The cap plates are clamped in position by bolts 18, which pass through ears 19 and 20 projecting from the ends of the plates and arms 3, and the flame check plates are clamped between said parts.

From the foregoing it will be understood that the mixed air and gas passes through the flame check plates into the convex cap plates, and escapes therefrom through the openings formed by the projecting grooves 15 of the cap plates.

In a burner constructed as herein shown and described, the separated arms and co-acting parts produce two parallel flames, and that there is an air circulating space 21 between them, into which air is entrained and carried upward, which prevents the

commingling of the flames, and insures separate and distinct flames at all times. Furthermore, the dripping condensation from the water coil or chamber above, strikes
5 upon the convex surfaces 12 of the cap plates, and upon the convex surfaces 5 of the arms 3, which prevents the splashing of the dripping condensation of one burner into the openings of an adjacent burner.
10 Furthermore, the condensation will flow over the surfaces of the cap plate and the arms, tending to cool them, and the dividing air circulating chamber 21 materially assists in keeping the burner from overheating and injuring the flame check plate. By
15 reason of the projecting of the upper ends of the cap plates, and having the outer ends of the grooves 15 stopping short of or at points inside of the upper end of the cap
20 plates, the dripping condensation cannot enter the burner escape openings formed thereby. Furthermore, by reason of the approximately vertical surfaces of the cap-plates and arms 3, the two flames are in practice
25 directed in nearly a vertical direction against the object above to be heated, while at the same time the burner is protected from dripping condensation, as already explained.

The present drawings illustrate a burner
30 embodying my present improvements, but I do not limit myself to the precise construction, for this may be varied by those skilled in the art without departing from the spirit and scope of the present improvement.

35 Having thus described my invention, what

I claim and desire to secure by Letters Patent is:

1. A burner comprising a vertical tube provided at its top with two separated upwardly projecting hollow arms, cap plates, 40 one cap plate forming the inner wall of each arm, the cap plates separated to form a vertical space between them, and each cap plate having outwardly opening gas exits.

2. A burner comprising a vertical tube 45 provided at its upper end with two separated upwardly extending hollow arms, cap plates, one cap plate forming the inner wall of each arm, the cap plates separated to form a vertical space between them, the sides 50 of the hollow separated arms extending below the lower edge of the cap plates, thereby forming depending passageways at the ends of said vertical space and communicating therewith. 55

3. A burner comprising a vertical tube provided at its upper end with two separated upwardly extending hollow arms, cap plates, one cap plate forming the inner wall of each arm, the cap plates separated to 60 form a vertical space between them, the bottom wall of said vertical space between the arms having depending ends and a straight central portion.

In testimony whereof I hereunto affix my 65 signature in the presence of two witnesses.

BENJAMIN E. MEACHAM.

Witnesses:

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A. C. CALHOON.