

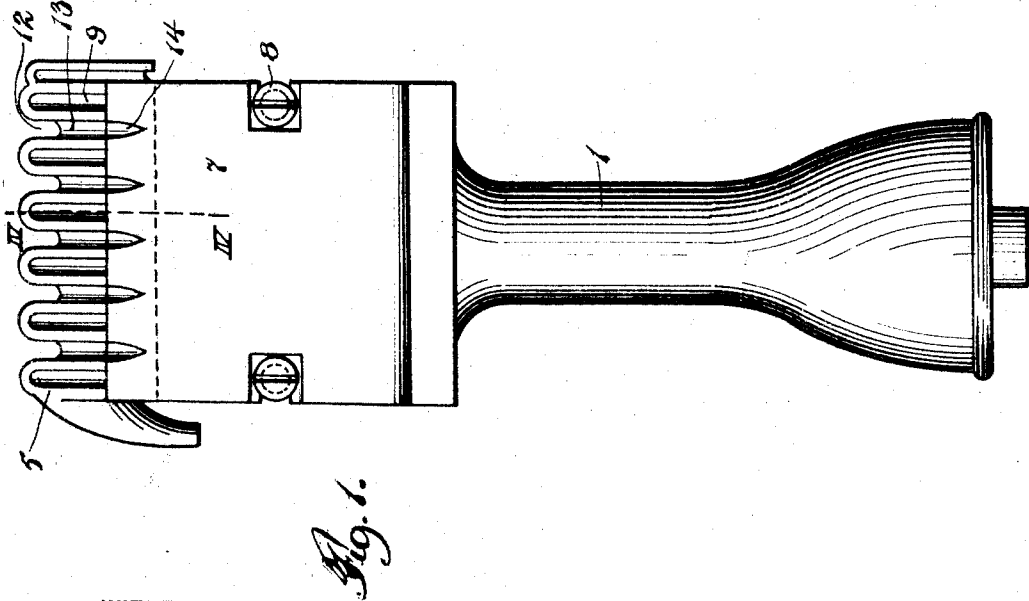
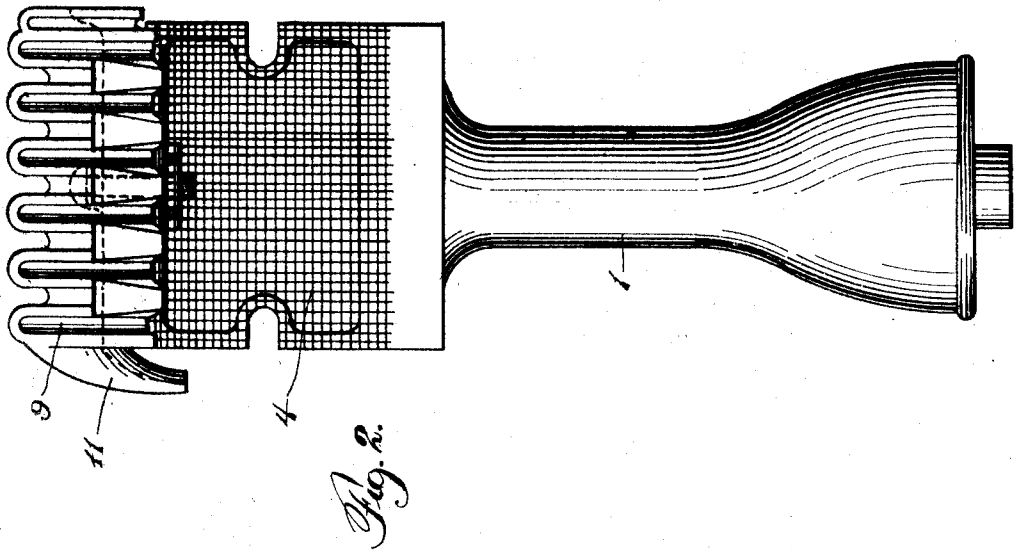
R. C. FRAMPTON.
BURNER.

APPLICATION FILED AUG. 20, 1909. RENEWED NOV. 4, 1911.

1,027,832.

Patented May 28, 1912

2 SHEETS—SHEET 1.



WITNESSES

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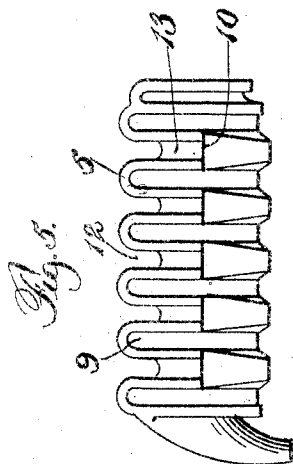


Fig. 5.

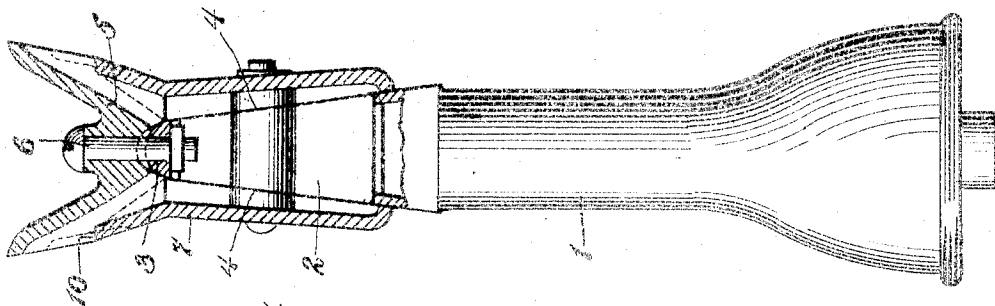
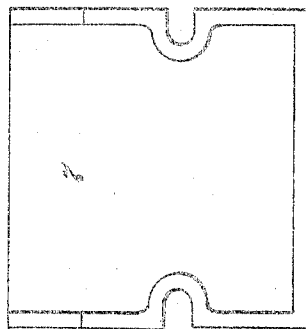


Fig. 4.

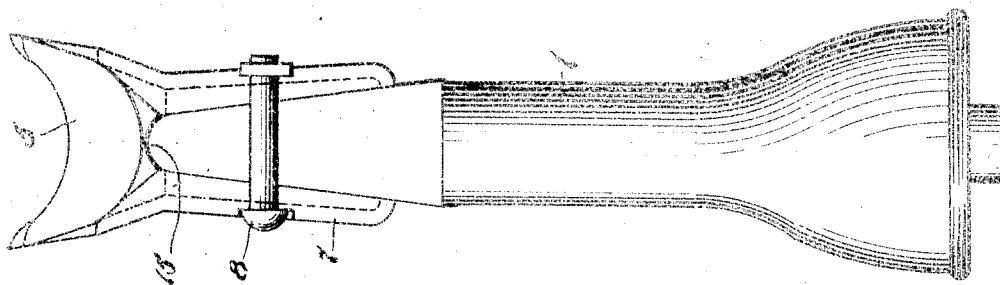


Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

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BURNER.

1,027,832.

Specification of Letters Patent.

Patented May 28, 1912.

Application filed August 20, 1909, Serial No. 513,765. Renewed November 4, 1911. Serial No. 658,616.

To all whom it may concern:

Be it known that I, REYNOLDS C. FRAMPTON, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Burners, of which the following is a specification:

The invention relates to burners of the general type shown in the patent to Buerkle No. 637,850 issued Nov. 28, 1899, and used primarily on instantaneous water heaters, and has for its principal objects; the provision of a burner in which all danger of back firing is eliminated; the provision of a burner in which better combustion is secured than in the burners of the same general type as heretofore constructed; the provision of a burner capable of efficient service under widely varying conditions of pressure, and with varying qualities of gas; the provision of a burner having improved means for disposing of any condensation from the coils beneath which the burners are commonly employed; and the provision of a burner construction wherein the flame is thrown clear of the burner casting and overheating of the casting and gauze in contact therewith is avoided. One embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side view of the burner,

Figure 2 is a similar view with the side plates removed,

Figure 3 is an end view of the burner,

Figure 4 is a transverse section of the burner on the line IV—IV of Figure 1,

Figure 5 is a side view of the cap plate, and

Figure 6 is a face view of one of the side plates.

Referring to the drawings, 1 is the body portion of the burner, in which the gas and air are mixed, and which is designed to be seated upon the supply pipe in the usual manner and which may be of any approved form; 2 is the elongated discharge chamber having closed ends and the top wall 3; 4—4 are a pair of perforated burner sheets, which may be either of woven gauze or sheet metal pierced with a plurality of small holes; 5 is the cap plate, which is secured in position on the top wall 3 by means of the screw bolt 6; and 7—7 are side plates which

are clamped in position by means of the 5 transverse screw bolts 8—8.

The cap plate 5 is provided on each side with a series of passages or troughs 9, which passages extend from the lower edge of the cap plate to the extreme upper edge thereof. By reference to Fig. 6 it will be seen that the upper inner edge of the side plate 7 is plain, and this upper edge surface fits against and covers the lower portions of the passages 9 in the cap plate, the extreme upper edge of the side plate fitting against a shoulder 10 (Figs. 4 and 5) formed upon the cap plate. The passages 9 are preferably somewhat tapered as will be seen by reference to Figures 4 and 5, the cross sectional area of such passages decreasing from the lower or inner ends of the passages to their upper or outer ends. The cap plate 5 is preferably made approximately V shape in cross section as indicated in Figure 4, and is provided at one end with a spout 11 by means of which the condensation collecting in the cap may be drained away. The cap plate intermediate the spouts or passages 9 is notched as indicated at 12, and grooves 13 extending downward from the lower ends of such notches are provided in the side faces of the cap plate. The upper edges of the side plates 7 are also provided with grooves 14 which form continuations of the grooves 13. The cap plate 5 is preferably made to fit down upon the body portion 1 somewhat loosely at the point 15 (Fig. 3), so that a slight amount of gas escapes at this point, and by its combustion serves to communicate the flame to the next burner, which arrangement is desirable as the burners are ordinarily arranged in series upon a circular supporting pipe, and after one of the burners has been lighted the other burners must be successively lighted from each other.

A number of objects are attained by reason of the structure as heretofore described. The provision of the elongated, narrow spouts 9 in the cap plate eliminates the possibility of the flame working back to the space between the face plate 7 and perforated plate 4, which back firing is detrimental as it is injurious to the perforated plate, and soot is formed by combustion at this point. Furthermore the spouts by reason of their arrangement and contour tend

to cause the ignited gas to burn out and away from the upper edge of the burner, thus avoiding the danger of overheating the metal. The provision of the notches 12 and the grooves 13 and 14, not only serves to keep the cap plate cooler, but also permits better access of the surrounding air to the jets of burning gas issuing from the spouts 9. The grooves 13 and 14 also provide for the drainage of the condensation which ordinarily forms above the burners, and drips down upon it. It will also be seen that the passages or spouts 9 are so widely separated that the jets of burning gas are substantially independent, and therefore each jet has a better supply of air than would be the case if they formed a continuous sheet or were arranged close together. The arrangement whereby the burning fuel is projected clear of the casting is advantageous furthermore, in that the burner is more durable, due to the fact that it is not overheated, and burned out as is the case where the flame plays directly upon portions of the burner in former constructions. The fact that the burning fuel is projected out and away from the burner permits the use of gas under varying pressures and of varying quality, as the combustion is much more complete than in the burners as heretofore constructed, and even with gas at low pressure and of poor quality there is no possibility of the flame creeping back through the long narrow channels 9 and igniting the fuel adjacent the perforated plate. Other advantages incident to the arrangement will be apparent to those skilled in the art.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent is the following:—

1. In combination in a burner, a discharge chamber having closed ends, and open sides, perforate siding covering the sides, side plates secured over the perforate siding and spaced away therefrom, and a cap plate fitting between the upper edges of the side plates and provided on each side with a plurality of diagonal tapering passages decreasing in size from their inner to their outer ends.

2. In combination in a burner, a discharge chamber having closed ends, and open sides, perforate siding covering the sides, side plates secured over the perforate siding and spaced away therefrom, and a cap plate fitting between the upper edges of the side plates and provided on each side with a plurality of outlet passages, the outer side faces of the cap plate intermediate the passages and above the side plates being grooved.

3. In combination in a burner, a discharge chamber having closed ends and open sides, perforate siding covering the sides, side

plates secured over the perforate siding and spaced away therefrom, and a recessed cap plate fitting between the upper edges of the side plates and provided on each side with a plurality of outlet passages, the upper edges of the cap plate being notched transversely intermediate the upper ends of the passages.

4. In combination in a burner, a discharge chamber having closed ends and open sides, perforate siding covering the sides, side plates secured over the perforate siding and spaced away therefrom, and a recessed cap plate fitting between the upper edges of the side plates and provided on each side with a plurality of outlet passages, the outer side faces of the cap plate intermediate the passages and above the side plates being grooved.

5. In combination in a burner, a discharge chamber having closed ends and open sides, perforate siding covering the sides, side plates secured over the perforate siding and spaced away therefrom, and a recessed cap plate fitting between the upper edges of the side plates and provided on each side with a plurality of outlet passages, the upper edges of the cap plate being notched intermediate the upper ends of the passages, and the faces of the cap plate being provided with grooves extending downward from the ends of the notches.

6. In combination in a burner, a discharge chamber having closed ends and open sides, perforate siding covering the sides, side plates secured over the perforate siding and spaced away therefrom, and a cap plate fitting between the upper edges of the side plates and provided on each side with a plurality of discharge members separated by air spaces at their outer ends with the passages thereof extending down to the space between the side plate, and the perforate siding.

7. In combination in a burner, a discharge chamber having an open side, a perforate plate over the side, a side plate secured over the perforated plate and spaced away therefrom, and a cap plate with a plurality of discharge members separated by air spaces at their outer ends with the passages thereof extending down to the space between the side plate and the perforate plate.

8. In combination in a burner, a discharge chamber having an open side, a perforate plate over the side, a side plate secured over the perforate plate and spaced away therefrom, and a cap plate fitting against the upper edge of the side plate and provided with a plurality of outlet passages, and with grooves on its outer face above the side plate and intermediate the passages.

9. In combination in a burner, a discharge chamber having an open side, a perforate plate over the side, a side plate secured over the perforate plate and spaced away there-

from, and a cap plate fitting against the upper edge of the side plate and provided with a plurality of outlet passages, the upper edge of the cap plate being notched transversely intermediate the upper ends of the passages.

10. In combination in a burner, a discharge chamber having an open side, a perforate plate over the side, a side plate secured over the perforate plate and spaced away therefrom, and a cap plate fitting against the upper edge of the side plate and provided with a plurality of outlet passages,

the upper edge of the cap plate being notched intermediate the upper ends of the passages, and the side face of the cap plate being provided with grooves extending downward from the ends of the notches.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

REYNOLDS C. FRAMPTON.

Witnesses:

HARVEY L. LECHNER,
ARCHWORTH MARTIN.