

C. O. SCHOLZ.
BURNER.
APPLICATION FILED JAN. 24, 1918.

1,282,955.

Patented Oct. 29, 1918.
2 SHEETS—SHEET 1.

Fig. 1

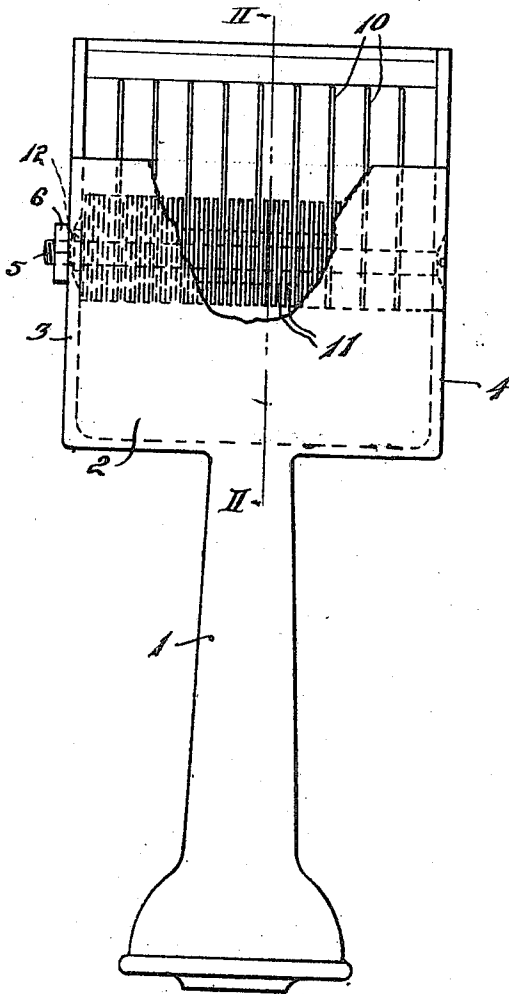
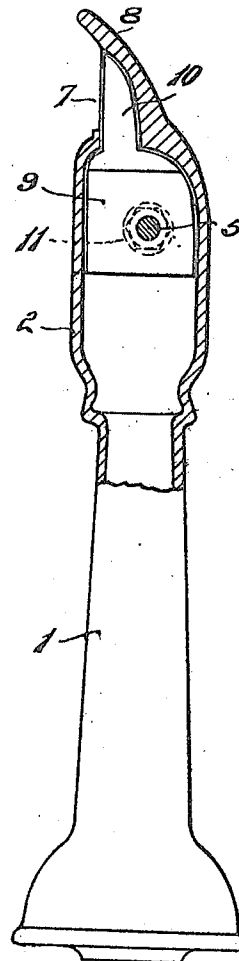


Fig. 2



WITNESS

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INVENTOR.

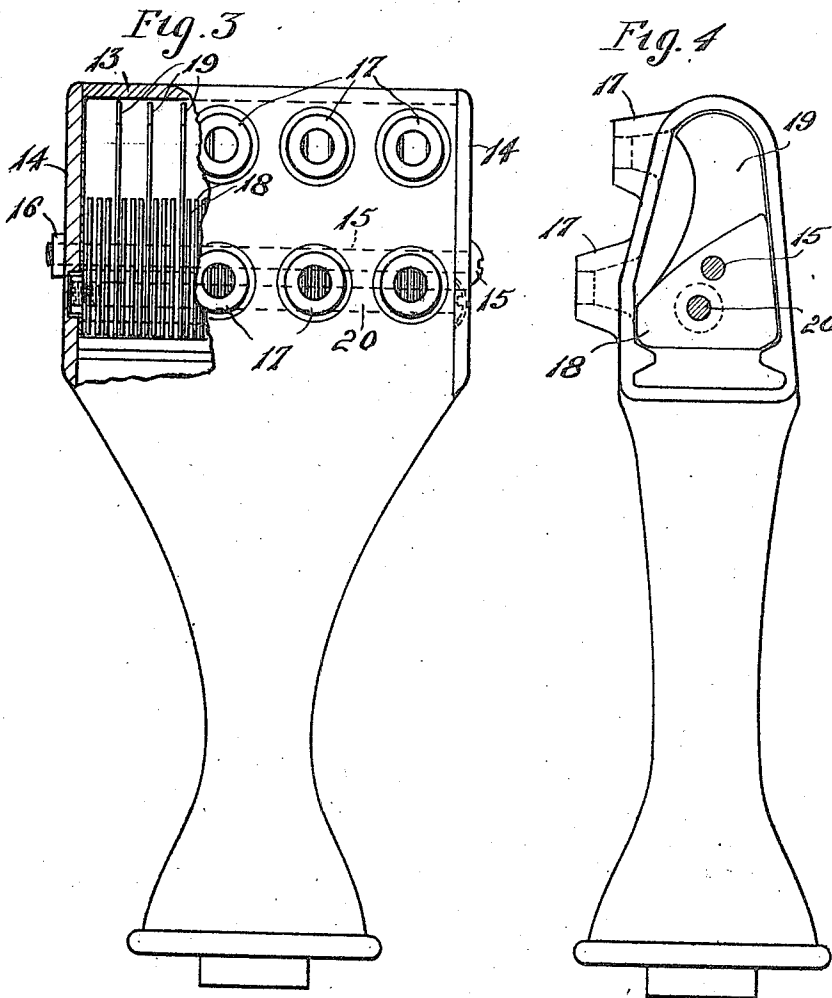
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2 SHEETS—SHEET 2.



WITNESS

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UNITED STATES PATENT OFFICE.

CHARLES O. SCHOLZ, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO PITTSBURGH
WATER HEATER COMPANY, A CORPORATION OF NEW JERSEY.

BURNER.

1,282,955.

Specification of Letters Patent.

Patented Oct. 29, 1918.

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To all whom it may concern:

Be it known that I, CHARLES O. SCHOLZ, 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 gas burners. It has for its principal objects, the provision of an improved burner, (1) in which the expensive copper gauze commonly employed in the better class of burners is eliminated, (2) which employs a substitute for the copper gauze which is practically indestructible and which requires little attention after the burner is installed, (3) which is cheaper than the burners employing the gauze as heretofore employed, and (4) which will not back-fire under varying degrees of gas pressure. Certain embodiments of the invention are illustrated in the accompanying drawings, wherein—

Figure 1 is a face view of the burner with a portion thereof broken away to disclose the device for preventing back-firing; Fig. 2 is a partial side elevation and partial section through the burner head of Fig. 1 on the line II—II; Fig. 3 is a front elevation of a modification with a part of the face of the burner head broken away to more clearly disclose the construction behind; and Fig. 4 is a side elevation of the burner with the cap plate at the end of the head removed.

Referring to Figs. 1 and 2, the reference numeral 1 indicates the mixing tube of the burner to which gas and air may be admitted at the lower end in the usual way, and 2 is the burner head, the burner head and the tube being preferably cast in one piece, as illustrated. The burner head has the integral closure plate 3 at one end, but is open at the other end, and such opening is normally closed by the cap plate 4 which is held in position by means of the bolt 5 carrying the nut 6 at its end. The upper portion of the head is provided with the outlet opening 7 and the overhanging lip 8.

Mounted inside the head, and just below the outlet opening 7, is the device for preventing back-firing in which the invention particularly resides. This back-firing device is designed to take the place of the gauze heretofore employed, and is made up of a series of sheet metal plates 9, approxi-

mately rectangular in shape, as indicated in Fig. 2, with other sheet metal plates 10 interspersed at intervals, such plates having their lower portions similar to the plates 9 but being provided with the upwardly projecting tongues fitting against the lip 8, as indicated in Fig. 2. The plates 9 and 10 are spaced apart by means of the washers 11 and the entire set of plates is held together by means of the bolt 5, such bolt being provided with the nut 12 shown in dotted lines in Fig. 1, so that when the nut 6 is removed the cap plate 4 may be taken off carrying with it the entire set of plates.

The plates constituting the device may be spaced apart varying distances by the use of washers or spacers of varying thickness so that the burner can be adapted to gases of different qualities. The plates are preferably sheet iron galvanized, but may be made of other metals if desired. The tongues 10 serve to divide up the main body of gas as it issues from the outlet 7, thus keeping the flame spread and resisting the tendency of the body of gas and flame to concentrate and flow upward in a peak.

Because of the length of the spaces in the device through which the gas must flow in relatively narrow sheets, it is practically impossible for any back-firing to occur, even under the most trying conditions with respect to pressure and quality of gas. For this reason the collection of soot is reduced to a minimum and the burner may be used for an indefinite period without requiring cleaning. The character of the device also renders it practically indestructible, and the burner may be used throughout the life of a heater without any replacement, thus eliminating the most common cause of trouble and expense in the maintenance of a heater. It is also possible to make the device cheaper than the ordinary copper gauze, but this is a minor consideration compared with the advantages over the copper gauze with respect to non-back-firing, length of life, and the absence of any requirement for cleaning. Other advantages incident to the construction will be readily apparent to those skilled in the art.

Figs. 3 and 4 illustrate a modification in which the burner head is somewhat differently constructed, although the device for preventing back-firing is identical in principle and general construction. In this par-

5 ticular embodiment of the invention the burner head 13 is open at both ends and is provided with caps 14 held in place by the bolt 15 with its nut 16. The face of the burner is provided with a plurality of outlet spouts 17 instead of the single slot of Fig. 1.

10 The anti-back-firing device consists of the plates 18 interspersed with the plates 19 having the upwardly projecting tongues, the spacing of the plates being accomplished with washers as in the other form of device. In this case the plates are held together by means of a separate bolt 20 so that 15 the plates are held together when the caps 14 are removed. The provision of the two caps 14, thus opening up the head at both ends, permits the more ready removal of the plate device.

20 What I claim is:

1. In combination in a burner, a burner head having gas outlet means, a device for preventing back-firing comprising a series of spaced metal plates positioned back of

said outlet means, and means extended in advance of said plates organized so as to divide the gas as it issues through said outlet means. 25

2. In combination in a burner, a mixing tube, a head having outlet means and a device for preventing back-firing in the head back of the outlet means and comprising a series of closely spaced parallel sheet metal plates, a part of the plates having extensions in advance of the main body of plates and interspersed so as to divide the gas as it issues from the outlet means. 30 35

3. In combination in a burner, a burner head having a gas conducting chamber, restricted outlet means disposed at one side of said chamber, and a device for preventing back-firing in the head comprising a series of closely related sheet metal plates disposed in said chamber, said device having reduced portions extending in advance of said plates in a direction toward said restricted outlet means. 40 45

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