

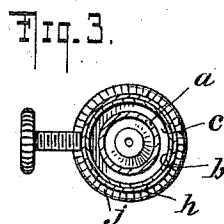
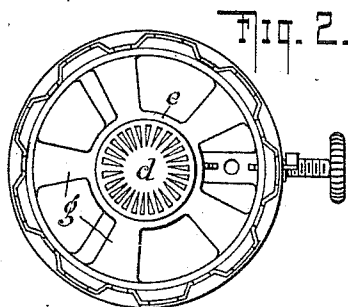
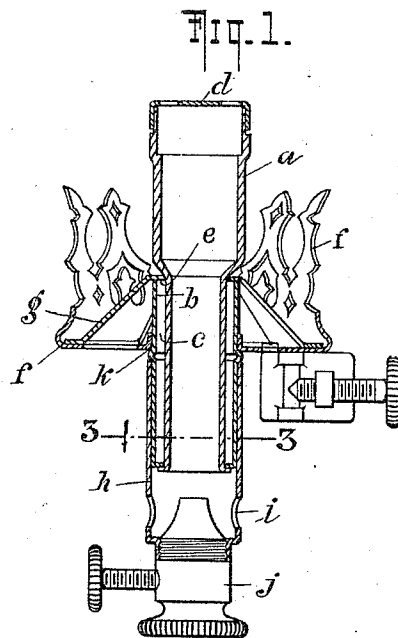
H. SÜSSMANN.

GAS BURNER.

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1,006,023.

Patented Oct. 17, 1911.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HEINRICH SÜSSMANN, OF BERLIN, GERMANY, ASSIGNOR TO DEUTSCHE GASGLÜHLICHT AKTIENGESELLSCHAFT (AUERGESELLSCHAFT), OF BERLIN, GERMANY, A CORPORATION OF GERMANY.

GAS-BURNER.

1,006,023.

Specification of Letters Patent.

Patented Oct. 17, 1911.

Application filed November 5, 1910. Serial No. 590,787.

To all whom it may concern:

Be it known that I, HEINRICH SÜSSMANN, a subject of the Emperor of Germany, and resident of Berlin, Germany, have invented certain new and useful Improvements in Gas-Burners, of which the following is a specification.

My invention relates to gas burners more particularly of the kind used in connection with upright incandescent gas lamps and has for its object to utilize for instance for preheating purposes the heat which is conducted to the metal by radiation instead of permitting said heat to become lost. The present structure is an improvement on the invention forming the subject matter of my pending application Serial No. 534571 filed December 23, 1909.

My present invention will be fully described hereinafter and the features of novelty will be pointed out in the appended claims.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a vertical section of my improved burner, Fig. 2 is a plan view thereof and Fig. 3 is a horizontal section on the line 3—3 of Fig. 1.

In the drawings the burner comprises a burner tube *a* which extends axially into a second tube *b* of larger diameter so as to leave an annular space *c* between said tubes *a* and *b*. The free end of the tube *a* is preferably covered by means of a sieve *d* or analogous structure in the customary manner. As shown in the drawings, the tube *b* is shorter than the tube *a* and extends upwardly from the bottom thereof, the two tubes being secured together by means of thin flat rings *e* located adjacent to the opposite ends of said tube *b* and bridging the annular space *c*. This space is thus in the nature of a chamber closed at opposite ends by said rings *e*. The usual chimney supporting gallery *f* is secured to the tube *b* by means of supporting members *g* so as to be carried thereby.

The tube *b* is arranged to extend into one end of a nozzle tube *h* provided with apertures *i* for the admission of air and internally screw threaded for connection with the usual nozzle *j*. A bead or other projection *k* is preferably provided at a suitable point on the tube *b* to limit the inward movement thereof relatively to the nozzle tube *h*.

With this construction therefore the burner tube does not, as usual, surround the nozzle tube, but is inserted into the same as described. In this way the mixture of air and gas is in direct touch with the burner tube *a* heated from the flame by radiation and conduction so that all the heat will be utilized in a most economical way to preheat the mixture. The nozzle *j* is arranged to be connected to the customary fixture in the well known way.

With my improved construction as described an air chamber is formed between the tubes *a* and *b* so that an air cushion or insulation envelops the lower portion of the burner tube *a* and prevents the heat from being conducted from the burner tube *a* to the tube *b*. As the burner tube *a* with this arrangement is also maintained out of contact with the nozzle tube *h*, which is only engaged by the tube *b*, the said envelop or insulation of air also prevents the heat from being conducted to said nozzle tube which is thus effectually protected. The thin flat rings *e* are of such small dimensions that practically no heat is conducted by them from one tube to another. The said envelop or insulation of air thus prevents the heat from becoming lost and serves to retain said heat in the interior of the burner tube where said heat contacts with the mixture of air and gas and serves to effectually preheat said mixture before it reaches the point of consumption. By supporting the chimney gallery *f* on the tube *b* this gallery is also insulated. This is of great advantage as the heat which is conducted down the inside of the burner tube by the flame will not heat the gallery so that the radiated heat will not be lost and the gallery remains cool. The heat conducted to the gallery *f* by radiation from the flame and conducted from the chimney is thoroughly utilized for preheating the secondary air. In other words by avoiding all contact between the burner tube *a* with the gallery *f* all the heat radiating from the flame and conducted from the flame through the burner tube *a* instead of being lost as usual by radiation from the large surface of the gallery, will, by radiation and conduction from the flame and from the chimney to the gallery, preheat the secondary air admitted from the bottom through the gallery.

A very cheap and efficient structure is se-

cured with my improved structure, which is also very light owing to the absence of any insulating material. In this improved structure the air in the chamber *c* forms a perfect insulating medium which surrounds the lower portion of the burner tube *a*.

The burner tube *a* instead of being fixed in the tube *b* may be removably secured therein.

Various changes in the specific construction shown and described may be made within the scope of the claims without departing from the spirit of my invention.

I claim:

1. In a gas burner a nozzle tube, a burner tube extending into said nozzle tube and means connected with said burner tube and arranged to form therewith an insulating air chamber adapted to insulate said nozzle tube against heat effects.

2. In a gas burner a nozzle tube and a plurality of tubes extending into said nozzle tube and spaced from each other to form an air space for insulating said nozzle tube against heat effects.

3. In a gas burner a nozzle tube, a tube

extending into said nozzle tube and a burner tube having a portion secured in and extending into said second tube, said inwardly extending portion being of smaller diameter than said second tube and spaced therefrom to form an air space for insulating said nozzle tube against heat effects.

4. In a gas burner, a nozzle tube, a burner tube, a tube spaced from and surrounding a portion of said burner tube and adapted to extend into said nozzle tube and a chimney gallery carried by said last named tube.

5. In a gas burner, a nozzle tube, a burner tube having a portion extending into and of a smaller diameter than said nozzle tube so as to form an air space around said inwardly extending portion and means connected with said burner tube for supporting it on said nozzle tube.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HEINRICH SÜSSMANN.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.