

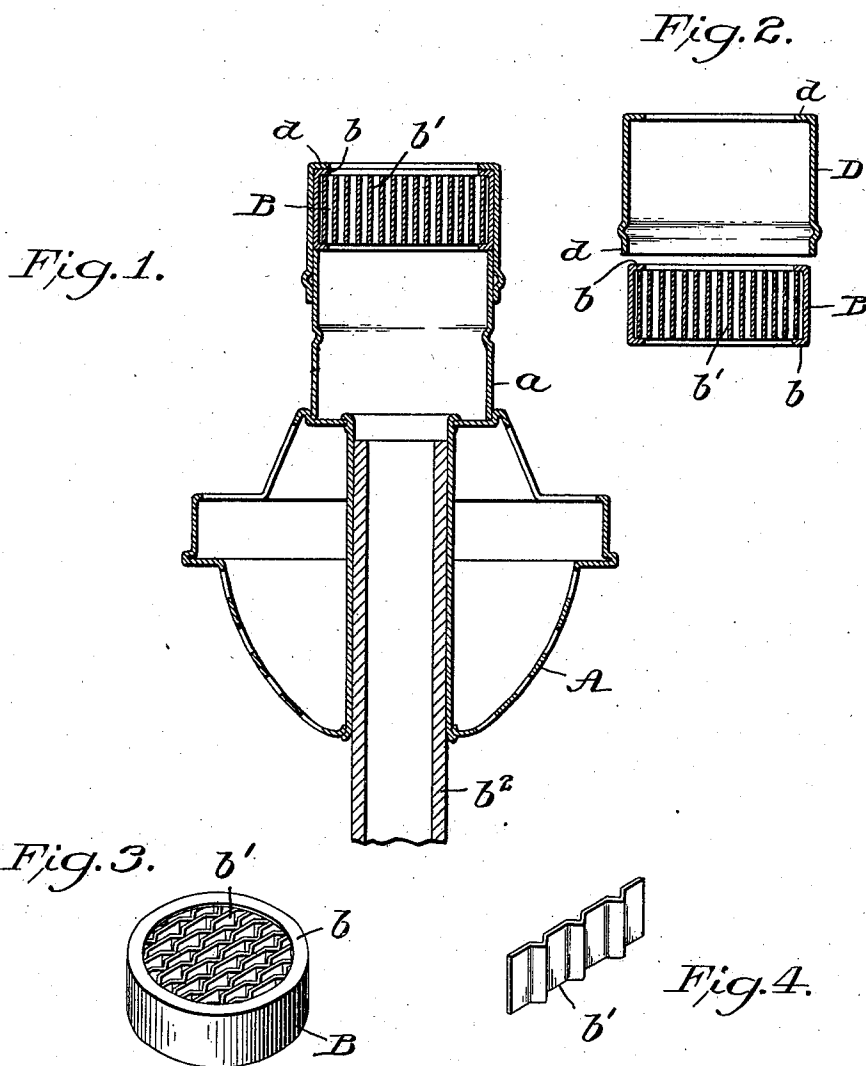
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T. GORDON.
INCANDESCENT BURNER HEAD.

(Application filed Dec. 17, 1901.)

(No Model.)



WITNESSES:

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INCANDESCENT BURNER-HEAD.

SPECIFICATION forming part of Letters Patent No. 712,130, dated October 28, 1902.

Application filed December 17, 1901. Serial No. 86,197. (No model.)

To all whom it may concern:

Be it known that I, THOMAS GORDON, a citizen of the United States, residing in the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Incandescent Burner-Heads, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to burner-heads employed in incandescent gas-light apparatus; and it has for its object to provide means to prevent the flame passing back to and firing the gas and air in the mixing-chamber, which is always below the burner, and to so construct said means that it shall retain its normal position in the burner-head, which the intense heat tends to disturb, and also be capable of removal and replacement in the burner-head support or holder.

In the drawings illustrating my invention, Figure 1 is a vertical section of my improved burner-head and so much of an incandescent gas-light apparatus as is necessary to illustrate the invention. Fig. 2 is a like view of the burner-head and its holder detached. Fig. 3 is a perspective view of my burner-head detached from its holder or support, and Fig. 4 is a like view of one of the crimped plates of which the burner-head is in part composed.

My invention, as illustrated therein, consists in the combination with an annular band or ring having opposite inturned flanges as a preferable and new means of fixedly holding a series of vertically-arranged parallel plates held endwise or vertically between said flanges, each of said plates being crimped at intervals in a direction at right angles to its length and provided with alternating flat surfaces, so as to present a series of flutes or crimps alternating with a series of flat surfaces, said plates being so arranged in the parallel series that crimped projections shall be opposite and abut against the flat surfaces of contiguous plates and so alternate with each other in the series in order to hold said plates against warping as far as possible,

and hence maintain the abutting plates in a spaced relation to each other; also, in the combination, with such a device constituting a burner-head proper, of a removable holder or support therefor, consisting of an annular ring having a single inturned flange at one end thereof, the opposite end being plain and adapted by its extension end to be secured to a burner-tube.

It is well known to those skilled in the art that the heat generated by the flame at the top of the burner-head is very great and that there is a constant tendency to fire the gas or mixed gas and air below the burner-head. To overcome these objections, various expedients have been adopted, which may be best explained by reference to certain features of the accompanying drawings, in which A is a perforated shade-holder. *b* is the connected tubular inlet, through which gas and air are admitted to the tubular chamber *a*, in the upper end of which is supported the burner-head B. In said chamber *a* the necessary thorough mixing of the gas and air is effected, and the usual means for accomplishing this has been the provision of a perforated plate or gauze-wire diaphragm. It has also been common to use another such diaphragm at or near the top of said chamber *a* to operate as a burner-head to prevent the firing back above referred to; but it is obvious that the constant white heat of high temperature at the point of ignition will soon destroy such diaphragm. Hence various substitutes therefor have been devised, all or most of which are objectionable for the same reasons in greater or less degree. My invention is designed to overcome these objections.

In order to enable others to make and use it, I will proceed to describe its construction and operation.

In Fig. 2 will be seen an annular ring or band B, having oppositely-disposed inturned flanges *b b* in parallel planes.

In Fig. 4 will be seen a plate *b'*, provided with crimps or flutes at intervals at right angles to the direction of its length alternating with flat surfaces. Before inturning one of the flanges *b* of the annular band B a se-

ries of such crimped plates b' is arranged within the band B in vertical position, said plates being substantially parallel to each other in the series, but arranged so that the alternating projecting crimps between contiguous plates in the series shall operate not only as spacing means relatively to the flat surfaces of contiguous plates, but as means to prevent such spaced relation being altered by warping—that is to say, of every two contiguous plates the crimp or projection of one shall rest against the plain or straight surface of the other, and so on in the series, as shown in Fig. 3. When the plates have been so placed in the holder or band B, with one of their edges resting against the inturned flange b thereof, the other flange b is then formed by inturning the metal, and the plates b' are thus securely held in position relatively both to the band or holder and to each other. This constitutes the burner-head proper, and in order to removably connect it with the tubular mixing-chamber a holder therefor must be provided. I provide such a holder, as shown at D, Fig. 2, which is a sheet-metal tube of slightly-greater length than the plate-holder B and having an inturned flange d , the other end d' being plain in order to provide by such additional length an extension end which may encircle the upper end of the tubular mixing-chamber a . As shown in Fig. 1, when these parts are thus assembled the burner-head will be held securely but removably in position in the upper end of the tubular mixing-chamber. As obvious from the description, the lower extended plain end d' of the holder D is when the burner-head is in place therein the equivalent of a mere extension of the plate-holder B and is so, in fact, if the latter is preferred to be soldered or otherwise securely fastened within the holder D. As described, the removable feature is desirable for economy in construction and use.

In operation it is found that my new burner-head in use is capable of resisting high degrees of heat without deterioration common to others—namely, each plate in the series serves to prevent distortion or buckling either lengthwise or laterally of the contiguous plate from heat, and the opposite flanges

$b b$ of the band-holder B aid to that end by maintaining said plates endwise firmly in position. When from continued use the burner-head is eventually destroyed, the removable feature of its construction, as described, enables its replacement by a new one without alteration of or addition to any other part of the apparatus.

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

1. A burner-head for incandescent gas-light apparatus, consisting of a series of thin plates having alternating crimped and flat surfaces in a direction at right angles to the length of the plate, said plates being combined in vertical series and parallel to each other, the crimped and flat surfaces respectively of contiguous plates being arranged opposite each other, whereby the whole body of plates in the series is maintained in spaced relation to each other, and means to fixedly support said plates in such relative position.

2. A burner-head for incandescent gas-light apparatus, consisting of an annular band or plate-holder having opposite parallel inturned flanges, and a series of thin plates crimped at right angles to the direction of the length of the plate, said plates being arranged vertically within the holder, in parallel series and in spaced relation to each other.

3. A burner-head of the character described, consisting essentially of a series of thin plates crimped at right angles to the direction of the length of the plate, said plates being arranged in vertical position, in parallel series, and in spaced relation to each other, a plate-holder having means to fixedly hold said plates in said relation to each other, and a removable plate-holder support having means adapted to maintain said plate-holder in operative relation to the tubular mixing-chamber of an incandescent light apparatus.

In testimony whereof I have hereunto affixed my signature this 13th day of December, A. D. 1901.

THOMAS GORDON.

Witnesses:

ANDREW V. GROUPE,
H. E. BATTERSBY.