

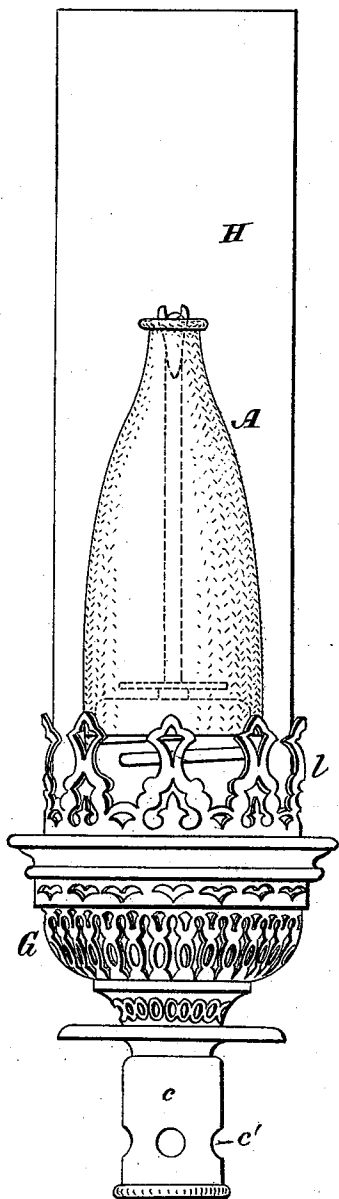
(No Model.)

J. & G. SULZBACH.
INCANDESCENT GAS LAMP.

No. 556,481.

Patented Mar. 17, 1896.

FIG. 1.



WITNESSES:

Fred White
Thomas F. Wallace

FIG. 3.

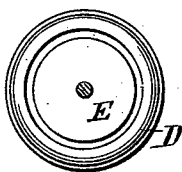


FIG. 4.

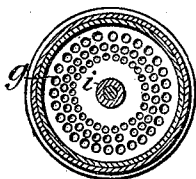


FIG. 5.

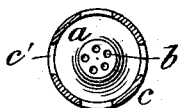


FIG. 6.

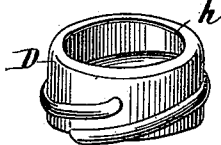


FIG. 7.

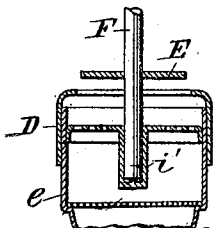
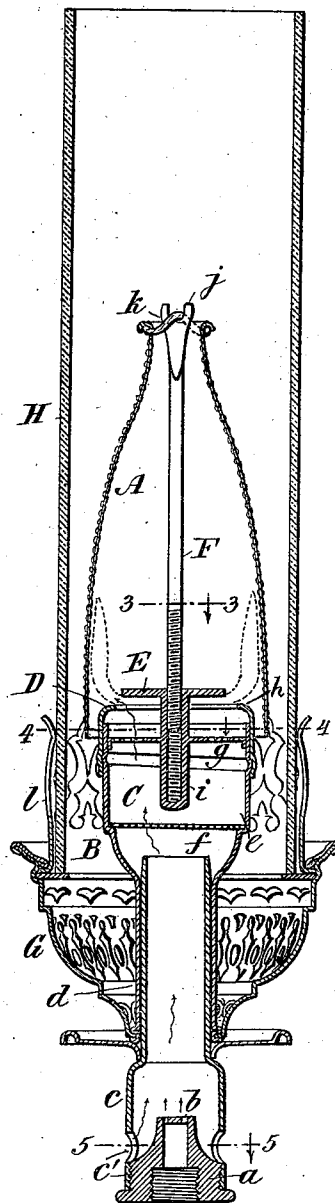


FIG. 2.



INVENTORS:

Jacob Sulzbach and
Georg Sulzbach,

By their Attorneys,

Arthur C. Fraser & Co.

UNITED STATES PATENT OFFICE.

JACOB SULZBACH, OF COLLEGE POINT, NEW YORK, AND GEORG SULZBACH, OF LEIPSIC, GERMANY, ASSIGNORS TO JOHN SPRICH, JR., OF PATERSON, NEW JERSEY.

INCANDESCENT GAS-LAMP.

SPECIFICATION forming part of Letters Patent No. 556,481, dated March 17, 1896.

Application filed April 25, 1895. Serial No. 547,162. (No model.)

To all whom it may concern:

Be it known that we, JACOB SULZBACH, a citizen of the United States, residing at College Point, in the county of Queens and State of New York, and GEORG SULZBACH, a subject of the Emperor of Germany, residing at Leipsic, Germany, have invented certain new and useful Improvements in Incandescent Gas-Lamps, of which the following is a specification.

This invention relates to gas-burners of that class wherein the combustion of the gas is employed to heat to incandescence a hood or mantle of refractory material, the brilliant incandescence of this hood serving as the source of light.

Our invention introduces certain improvements in the construction of the burner and in the means for supporting the incandescent mantle, as will be made apparent from the following description with reference to the accompanying drawings, wherein—

Figure 1 is a side elevation of our improved burner. Fig. 2 is a vertical mid-section thereof. Fig. 3 is a plan of the burner-tip in horizontal section on the line 3 3 in Fig. 2. Fig. 4 is a horizontal section thereof on the line 4 4 in Fig. 2. Fig. 5 is a horizontal section, the outer tube being cut in the plane of the line 5 5 in Fig. 2. Fig. 6 is a perspective view of the adjusting shield or tip of the burner. Fig. 7 is a fragmentary vertical section illustrating a modification.

Referring to the drawings, let A designate the incandescent mantle, which may be of any construction or materials now known.

Let B designate the gas-burner as a whole. This gas-burner is constructed with a base-piece *a* adapted to screw on any ordinary gas-fixture to take the place of a gas-burner. This piece *a* constitutes an injector-nozzle having perforations *b b* for escape of the gas. On the exterior of the nozzle *a* is screwed or otherwise attached a tube *c* having holes *c'* near its bottom for admitting air. The interior of the tube *c* serves thus as a mixing-chamber for commingling the entering gas and air, as in any Bunsen burner. The upper part of the tube is contracted, and over it is placed a tube *d*, constituting the stem or

support for a cup *e*, the interior of which forms a mixing-chamber C. The interior of the cup is divided by a horizontal partition *f* of wire-gauze or other foraminous material, and again higher up by a foraminous partition *g*, preferably of sheet metal. These foraminous partitions constitute means for effecting the thorough and complete admixture of the gas and air. Outside of the cup *e* and extending somewhat above it is arranged an adjustable shield or burner-tip D. (Shown detached in Fig. 6.) The upper edge of this shield is turned inwardly, forming an annular lip *h*, so that it serves as a concentrator to direct toward the center the upwardly-flowing stream of mingled gas and air. The shield is adjustable vertically either by making it a tight sliding fit with the cup, as shown in Fig. 7, so that it may be held in any position by friction, or preferably by forming it with a screw-thread, as shown in Fig. 6, engaging a similar screw-thread on the cup *e*, so that by rotating it in either direction it may be raised or lowered.

Mounted at a suitable height above the cup *e* is a disk E, constituting a spreader, for throwing the flame outwardly against the mantle. In the construction shown in Fig. 2 this disk is mounted on a tube *i*, fixed in place within the cup either by being soldered to the foraminous disk *g* or by any other suitable means of connection. In this construction the disk E is fixed at an invariable height above the top of the cup. The burning gas issues from the annular space between the rim of the disk and the inturned lip *h* of the shield, the shape of the flame being approximately as shown in dotted lines in Fig. 2. It is thus seen that the flame is directed outwardly on all sides against the inner surface of the mantle, so that it plays up against the inside of the mantle, whereby its heat is more effectually utilized for rendering the mantle incandescent.

For supporting the mantle, instead of carrying up a supporting rod or bracket outside of the burner, we provide an interior or axial rod F, the upper end of which is advantageously bifurcated, as shown at *j*, or may be otherwise formed for convenient engagement

with the mantle. In the construction shown the mantle has a cord of asbestos $\frac{1}{2}$ carried across its upper end and resting in the bifurcation, by which means the mantle is supported from the rod. By this means of support the supporting device is symmetrical and is wholly concealed within the luminous mantle, instead of being arranged upon the exterior and to one side of the mantle, as heretofore, so that it casts a shadow.

We provide for adjusting the mantle in vertical direction by constructing the rod F so that it is vertically adjustable. This is preferably done by mounting the rod in the manner shown in Fig. 2, where the lower portion of the rod is screw-threaded and screws into the tube i , which is internally threaded. By taking hold of the bifurcated upper end of the rod and rotating it in either direction it may be screwed up or down to bring the mantle to the desired height. Ordinarily the rod will be screwed to its highest position when the mantle is new, and as the lower part or skirt of the mantle burns away the rod will be lowered in order to keep the skirt of the mantle below the burner-tip.

The burner is provided with any usual skeleton shell G, having perforations for admitting air and formed with a chimney-holder l for sustaining the usual glass chimney H. In the construction shown this shell G is united to the base of the tube d . This tube d is a free sliding fit with the contracted portion of the tube c , so as to be readily lifted off therefrom.

In the modification shown in Fig. 7 the rod F is not vertically adjustable, but drops freely into a socket or tube z' , from which it may be lifted out. The disk E is in this construction fastened upon the rod F, which is feasible, since the rod is not vertically adjustable. The shield D is, as before stated, made a sliding fit, so as to be vertically adjustable upon the cup e . In other respects this construction is the same as that first described.

Our improved incandescent gas-burner has the advantages of a very simple and substantial construction for effecting a very thorough and complete commingling of the gas and air, of insuring for the flame the best form for most fully utilizing it to heat the mantle, and affords the most perfect adjustability of the form and direction of the flame. This adjustment is effected by moving the shield D up or down. The effect of moving it up is to narrow the annular space through which the flame issues beneath the spreading-disk E, and thereby throw the flame more directly outward, causing it to impinge more forcibly upon the mantle than if the shield were lower down so as to afford a more free and unobstructed passage.

We claim as our invention the following-

defined novel features, substantially as hereinbefore specified, namely:

1. An incandescent gas-burner having a flame-spreading disk above the mixing-chamber for directing the flame outwardly against the luminous mantle.

2. In an incandescent gas-burner, the combination with the gas and air mixing chamber C, of a flame-spreading disk E mounted above the open top of the chamber.

3. In an incandescent gas-burner, the combination with the gas and air mixing chamber C, of a shield D having an inturned flange at its top overhanging the top of the chamber and contracting the flame-outlet therefrom, and a flame-spreading disk E mounted above the shield.

4. In an incandescent gas-burner, the combination with the gas and air mixing chamber C, of a shield D having an inturned flange at its top mounted over the chamber and adjustable vertically thereon.

5. In an incandescent gas-burner, the combination with the gas and air mixing chamber C, of a shield D having an inturned flange at its top mounted over the chamber and having a screw-thread engaging a thread on the exterior of the chamber for adjusting it vertically.

6. In an incandescent gas-burner, the combination with the gas and air mixing chamber C, of a flame-spreading disk E mounted above the open top of the chamber, and a shield D having an inturned top mounted over the chamber and beneath said disk, and adjustable vertically to vary the width of the gas-discharge space between the shield and disk.

7. In an incandescent gas-burner, a mantle-support consisting of a rod arranged within the mantle and mounted to be adjustable vertically, to admit of its being lowered as the mantle crumbles away beneath.

8. In an incandescent gas-burner, a mantle-support consisting of a rod arranged within the mantle having an operating-handle projecting above the mantle, and having a screw-threaded lower end and a threaded socket on the burner engaged thereby, whereby the rod is vertically adjustable.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

JACOB SULZBACH.

GEORG SULZBACH.

Witnesses as to the signature of Jacob Sulzbach:

LEO OPPENHEIMER,

EMMA OPPENHEIMER.

Witnesses as to the signature of Georg Sulzbach:

RUDOLPH FRICKE,

OTTO DOEDERLEIN.