

(No Model.)

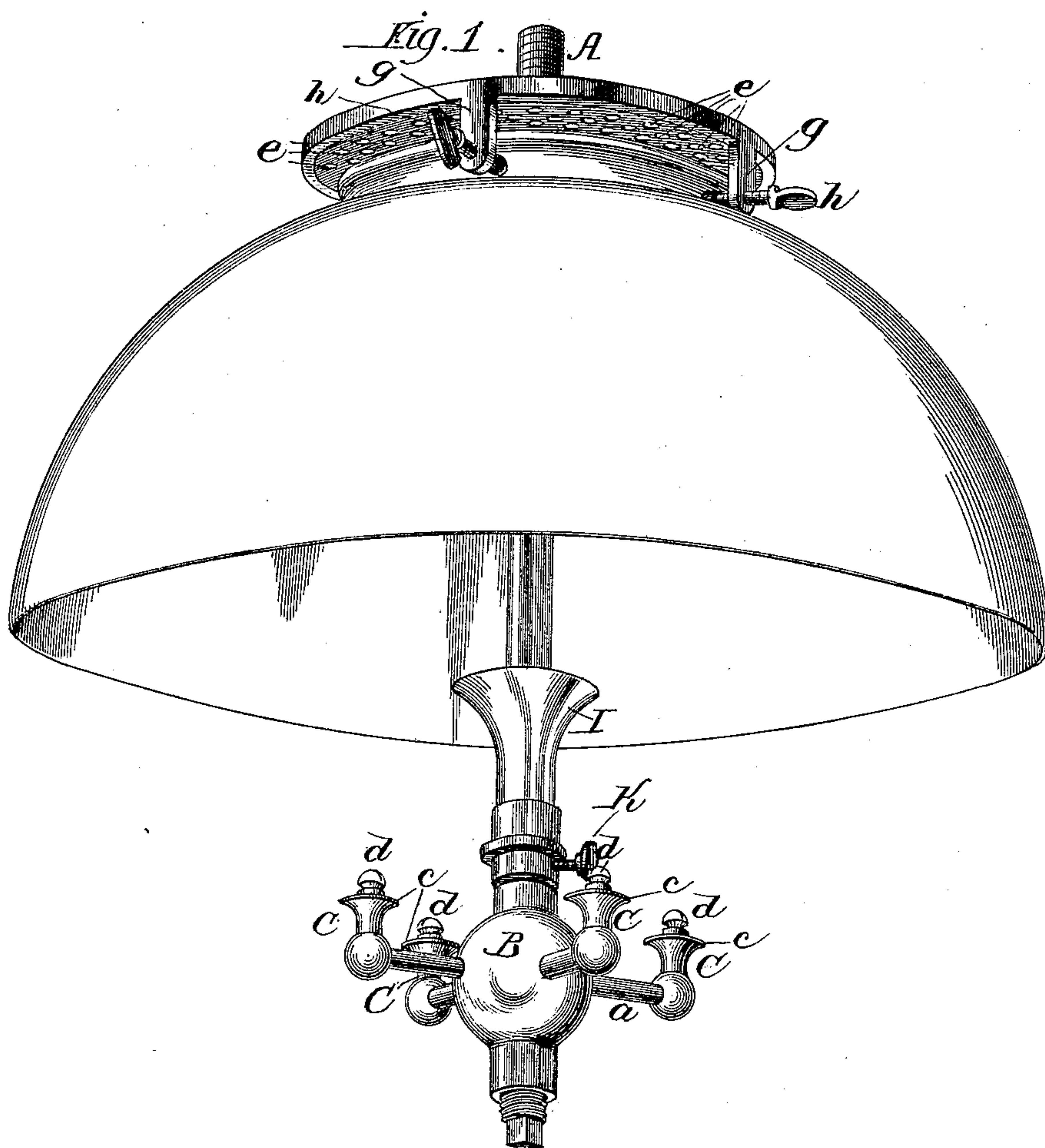
3 Sheets—Sheet 1.

S. D. BALDWIN.

## SUPERHEATING GAS BURNER.

No. 352,509.

Patented Nov. 16, 1886.



Witnesses:

Q. V. Bond -

Harry F. Jones.

*Inventor:*

Silas D. Baldwin

(No Model.)

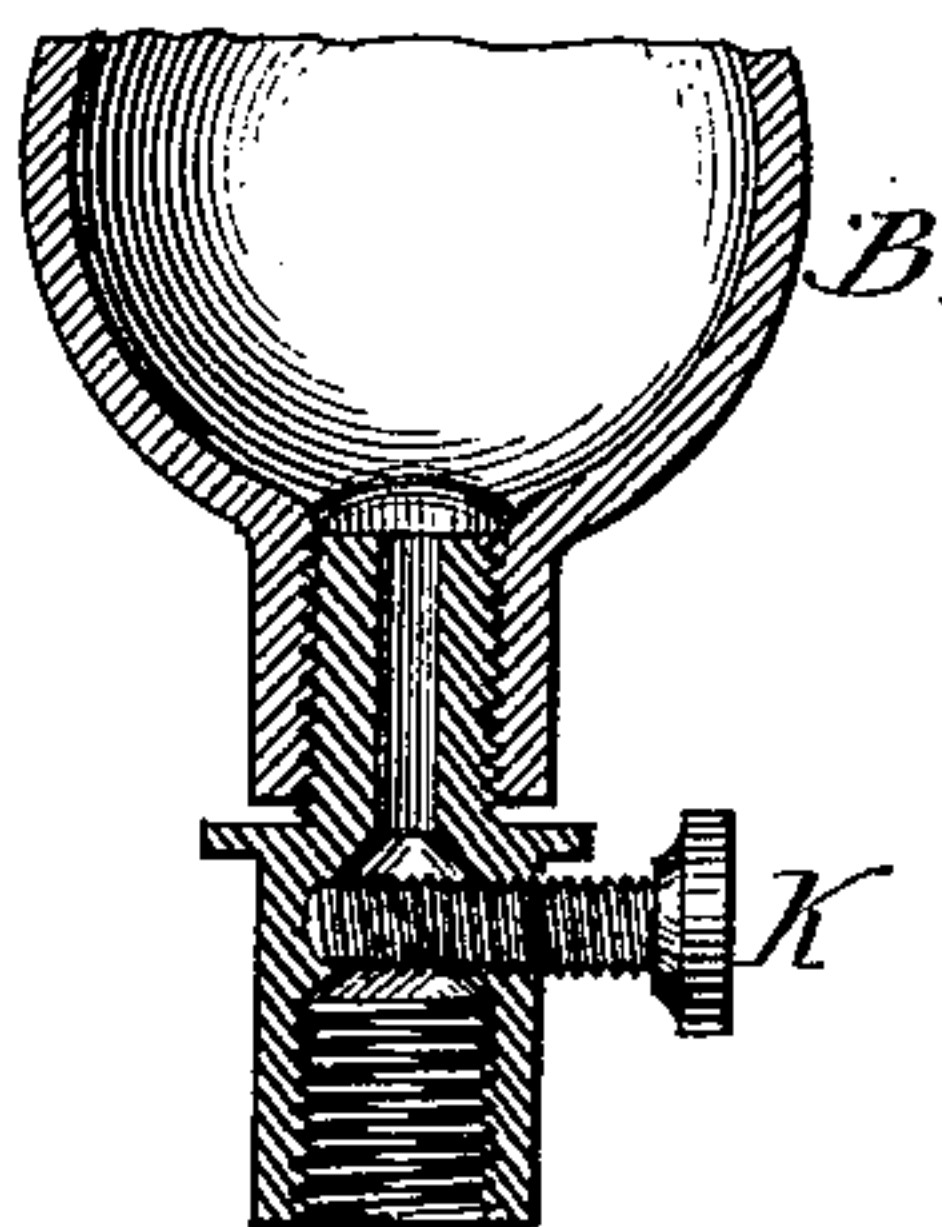
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Harry F. Jones.

Inventor:  
Silas D. Baldwin

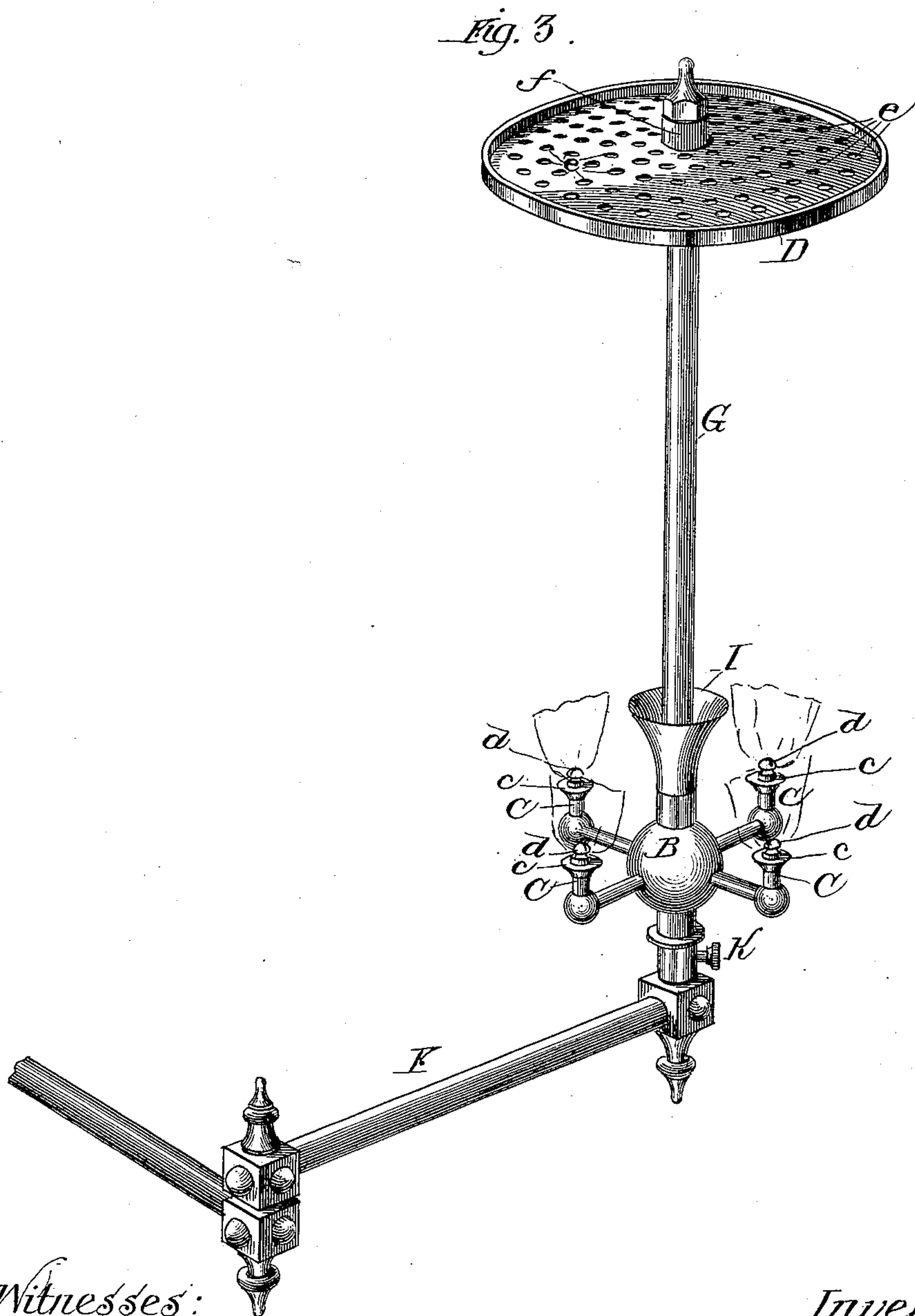
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SUPERHEATING GAS BURNER.

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Silas D. Baldwin



# UNITED STATES PATENT OFFICE.

SILAS D. BALDWIN, OF CHICAGO, ILLINOIS.

## SUPERHEATING GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 352,509, dated November 16, 1886.

Application filed May 1, 1886. Serial No. 200,858. (No model.)

*To all whom it may concern:*

Be it known that I, SILAS D. BALDWIN, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented certain new and useful Improvements in Superheating Gas-Burners, of which the following is a full description, reference being had to the accompanying drawings, in which—

10 Figure 1 is a perspective; Fig. 2, a vertical section. In these two figures the gas is supposed to be brought to the burners from above. Fig. 3 is a perspective in which the gas is supposed to be brought to the burners from below. Fig. 4 is a full-sized burner having a long body. Fig. 5 is a detail, being a section showing the bulb or chamber which receives the arms which support the burners, and a device for regulating the flow of gas located below the burners.

The leading objects of my invention are to provide an improved gas-burner adapted for use in buildings or in the street; to provide for heating the gas before it reaches the point of combustion; to provide for consuming particles of carbon which escape from the flame; all of which I accomplish as illustrated in the drawings and hereinafter described.

That which I suppose to be new will be pointed out in the claims.

In the drawings, A represents a tube, through which gas passes from above to one or more burners.

35 B is a bulb or chamber to receive the hollow arms *a*, which support the burners.

40 C C are burners, each of which is provided with an overhanging flange, *c*, of considerable size, located just below the tip *d*, said flange being extended inward to the base of the tip and formed with an exterior curved or concaved face on its under side.

45 D is a metal disk, which, as shown, is provided with a number of holes, *e*. This disk has a flange, *f*, near the center, which encircles the tube A, and the disk is held in place upon the tube A by means of a screw-thread, as shown in Fig. 2. The tube A can be connected with the gas-pipe above by means of a suitable coupling. The plate D is provided with a suitable number of lugs, *g*, three or more in number, extending downward.

*h* are screws which pass through the lugs *g*.

*i* are pieces of vulcanized rubber or other material which is a non-conductor of heat.

E is a globe, held in place by the screws *h*. 55

I is a piece of metal, having, as shown, the form of an inverted bell, which piece of metal I is located upon the tube A.

J is a coupling, to the opposite ends of which the tube A and bulb B are connected. J is, as shown, provided with a small chamber, and K a plug-valve, the inner end of which passes into said chamber. By means of this valve the flow of the gas to the burners can be regulated. 65

In Fig. 3 I have shown my improved burners, the plate D, and the bell-shaped piece of metal I, substantially as in Figs. 1 and 2; but in this Fig. 3 the gas is supposed to flow to the burners from below through the pipe F. In this Fig. 3 the governor K is located below the bulb, and the plate D is supported on a rod, G. As shown in this figure, the plate D is a considerable distance above the burners. This position of the plate is well adapted to burners of a very large capacity; but when used with burners of smaller capacity the plate should be located nearer the burners, which can readily be done by making the support G shorter. 80

In Figs. 1, 2, and 3 the burners are very short. This form is not essential. In Fig. 4 I have shown a burner the body of which is long and having the flange *c* just below the tip.

The plate D performs an important office. 85 It becomes quite hot, and from it heat will be transmitted to the tube A, and the gas on its way to the burners will be heated, which is an advantage. This plate also serves another office. It becomes hot enough to consume particles of carbon which are thrown off from the flames, and which, rising come in contact with the plate. This plate also, when provided with the lugs *g*, serves the purpose of a globe-holder in connection with the 95 screws *h*. When used in connection with a globe, there will be an upward current within the globe, which will assist in steadying the flames. The piece of metal I receives heat from the flames. A portion of such heat will be transmitted to the tube A, and the gas passing through the tube will be heated on its way to the burner when the gas is introduced from above. When the gas is intro- 100



duced from below, as shown in Fig. 3, the flames will heat the plate, and the effect of this heat will be transmitted downward to the chamber B, and the gas will be heated in such  
5 chamber on its way to the burners. The pieces of vulcanized rubber or other non-conductor of heat prevent the communication of heat from the plate to the globe, and being somewhat flexible also prevent the breakage of the globe by expansion. The curvature of the exterior face of the piece I is one which causes the upward currents of cold air drawn in from below the burner to be deflected or turned outward, so as to pass between the flames and  
15 the face of I, forming a shield around the piece I by which the flames are prevented from hugging or being drawn closely around the piece I, so that this piece also performs the office of a deflector for turning the current of cold air.

20 What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a gas-burner, of the bulb B, supporting the burner-tube, the inverted bell-shaped superheater I, located  
25 above said bulb, the perforated disk D, supported above the superheater, and pipes for conveying gas to the bulb and burner, substantially as described.

2. The combination of the bulb B, a pipe for conveying gas to said bulb, the burners C, 30 each having a tip, *d*, a curved under surface, and a circular overhanging flange, *c*, just below said tip, the inverted bell-shaped superheater I, and the tubes *a a*, connecting the bulb and burners, said tubes being arranged 35 beneath the overhanging flanges of the burners, substantially as described.

3. The combination of gas-burners, a globe, a perforated disk, D, arranged above said burners, and provided with lugs and screws *h*, 40 to receive and hold the globe, non-conductors of heat, *i*, between the screws and globe, and a central support for the disk, substantially as described.

4. The combination of the bulb B, gas- 45 burners supported by said bulb, a tube for conveying gas to the bulb, a superheater, I, a coupling, J, and gas-regulator K, substantially as described.

SILAS D. BALDWIN.

Witnesses:

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O. W. BOND.