

No. 689,409.

Patented Dec. 24, 1901.

W. H. PORTER.
CATALYTIC GAS LIGHTER.

(Application filed Aug. 20, 1896.)

(No Model.)

Fig. 2.

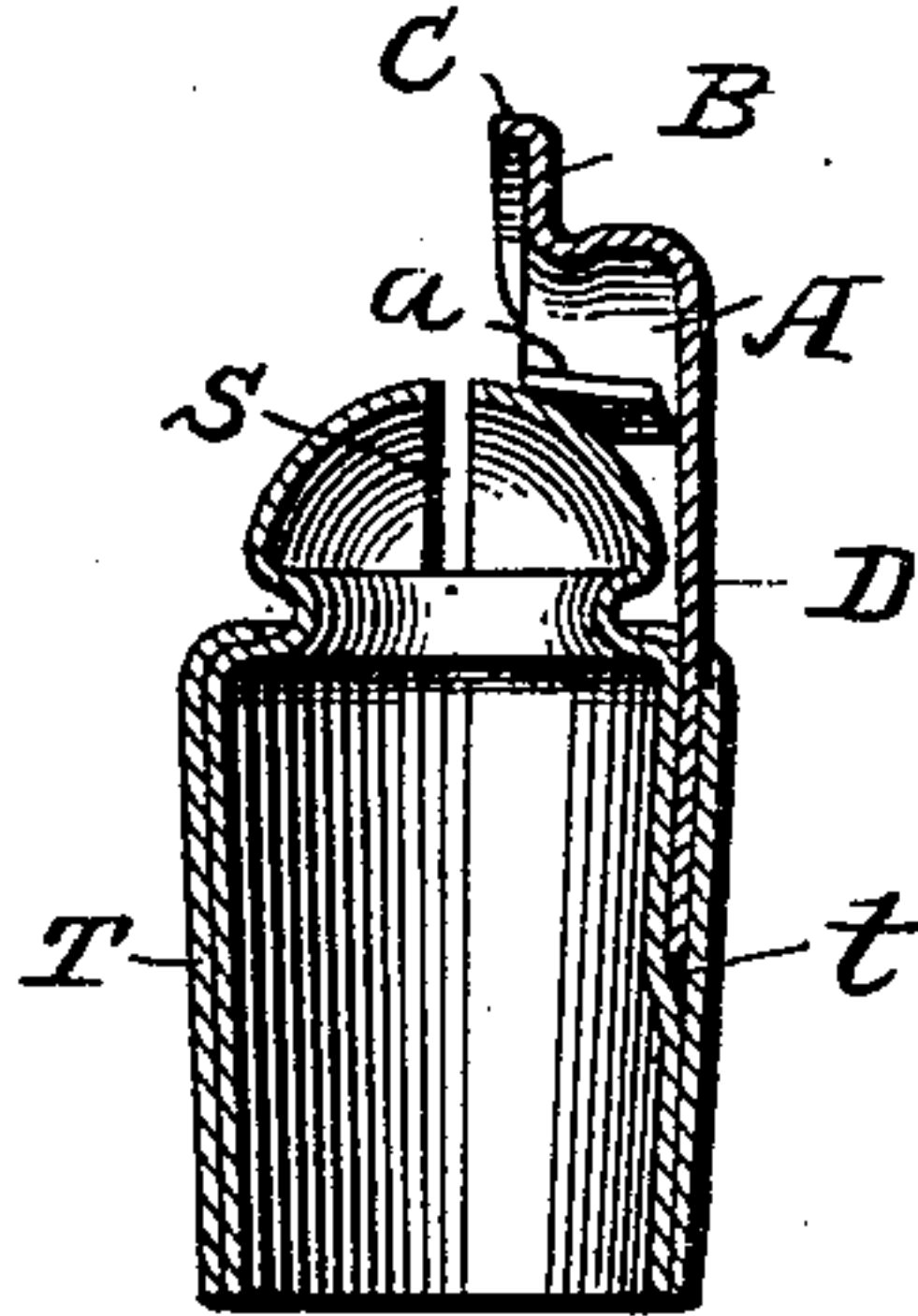


Fig. 4.

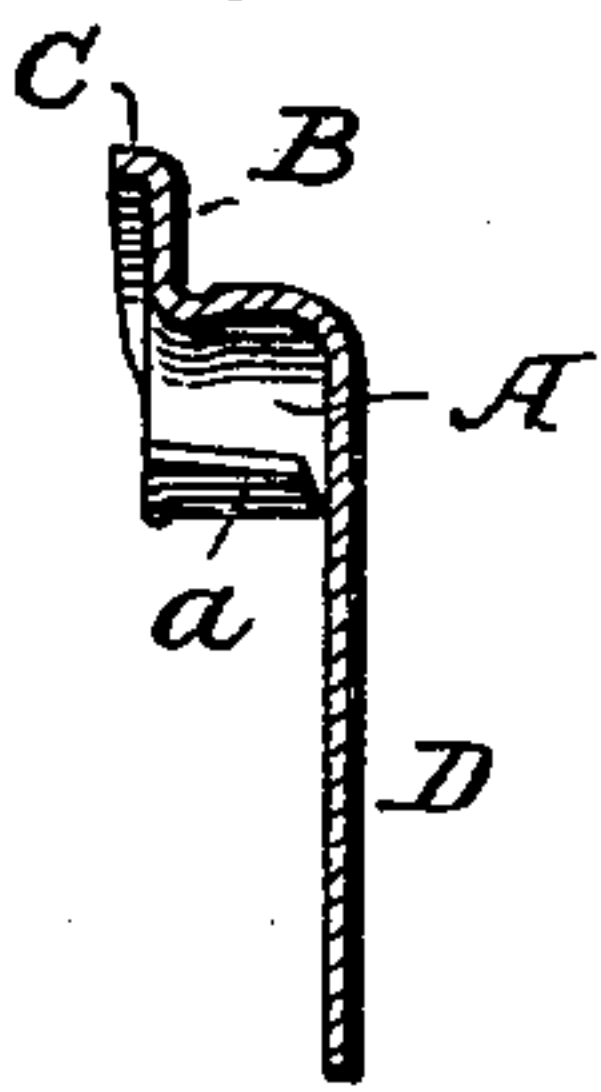


Fig. 5.

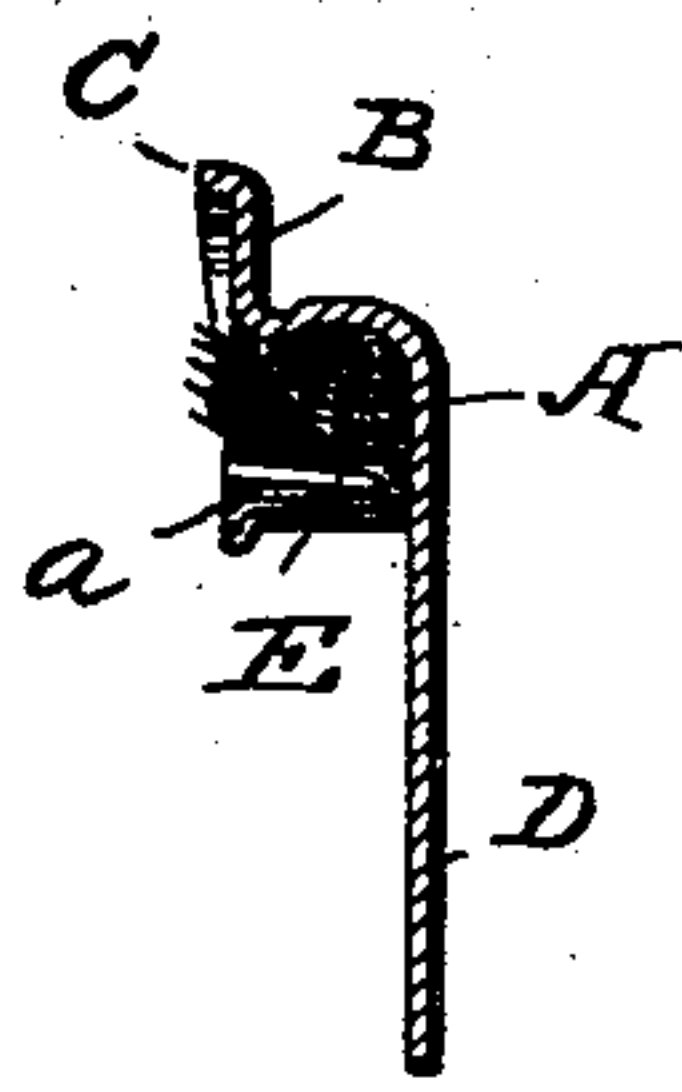


Fig. 1.

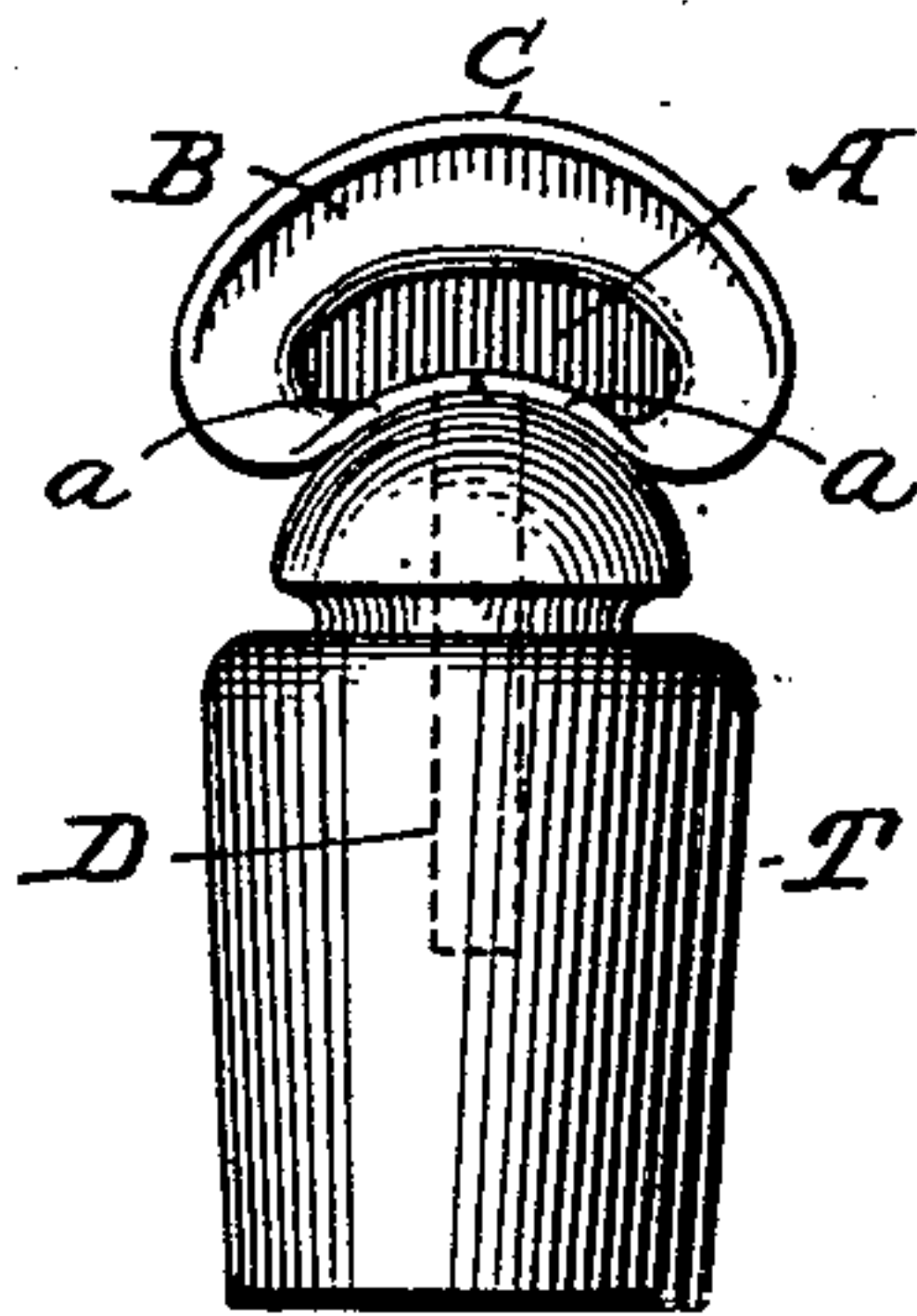


Fig. 6.

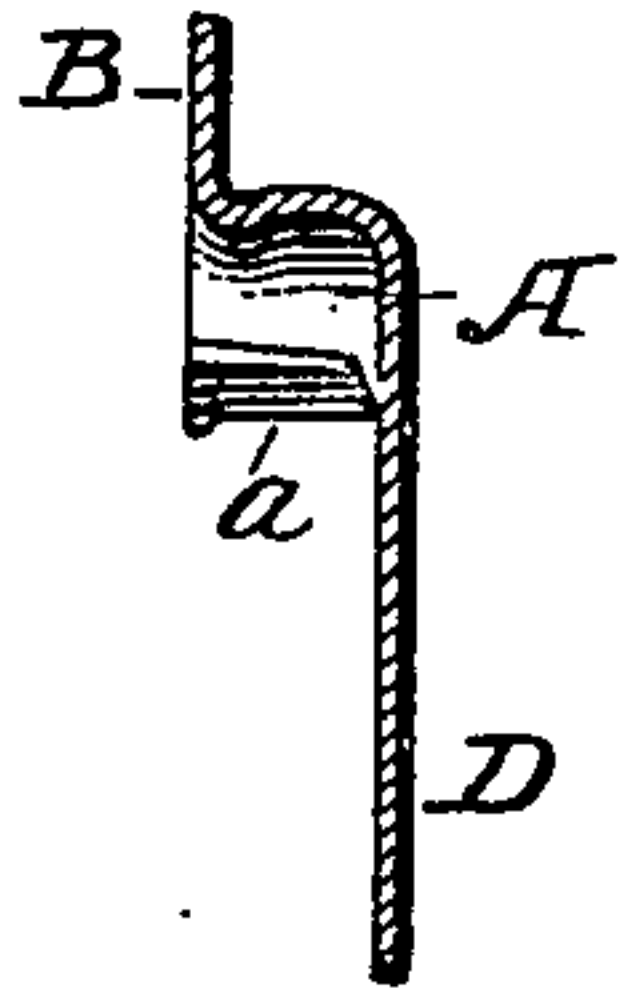


Fig. 7.

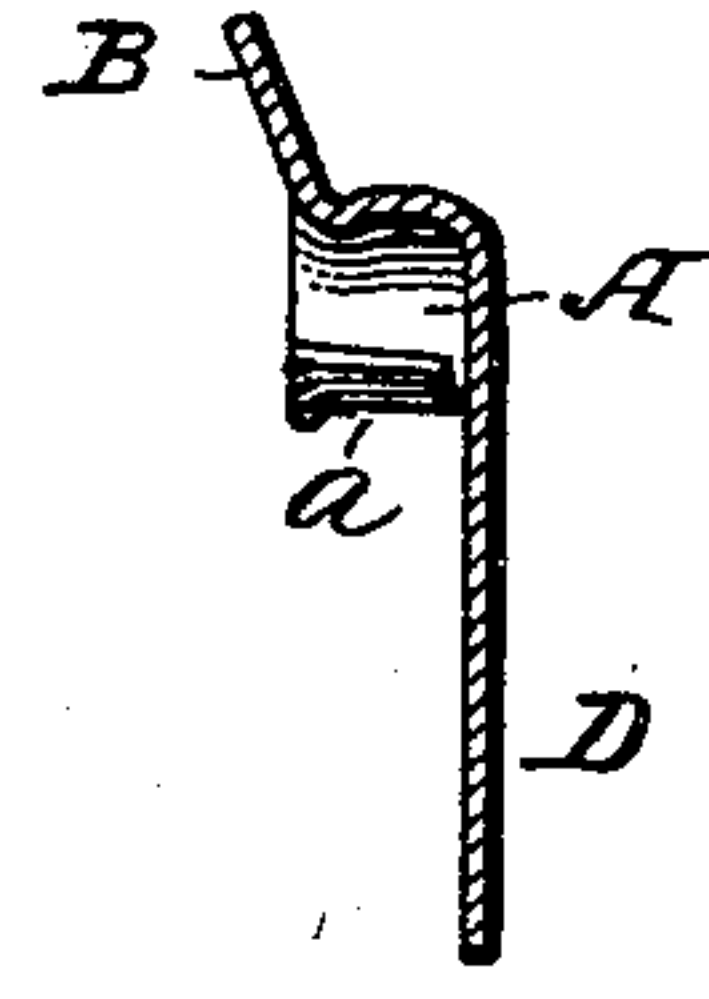
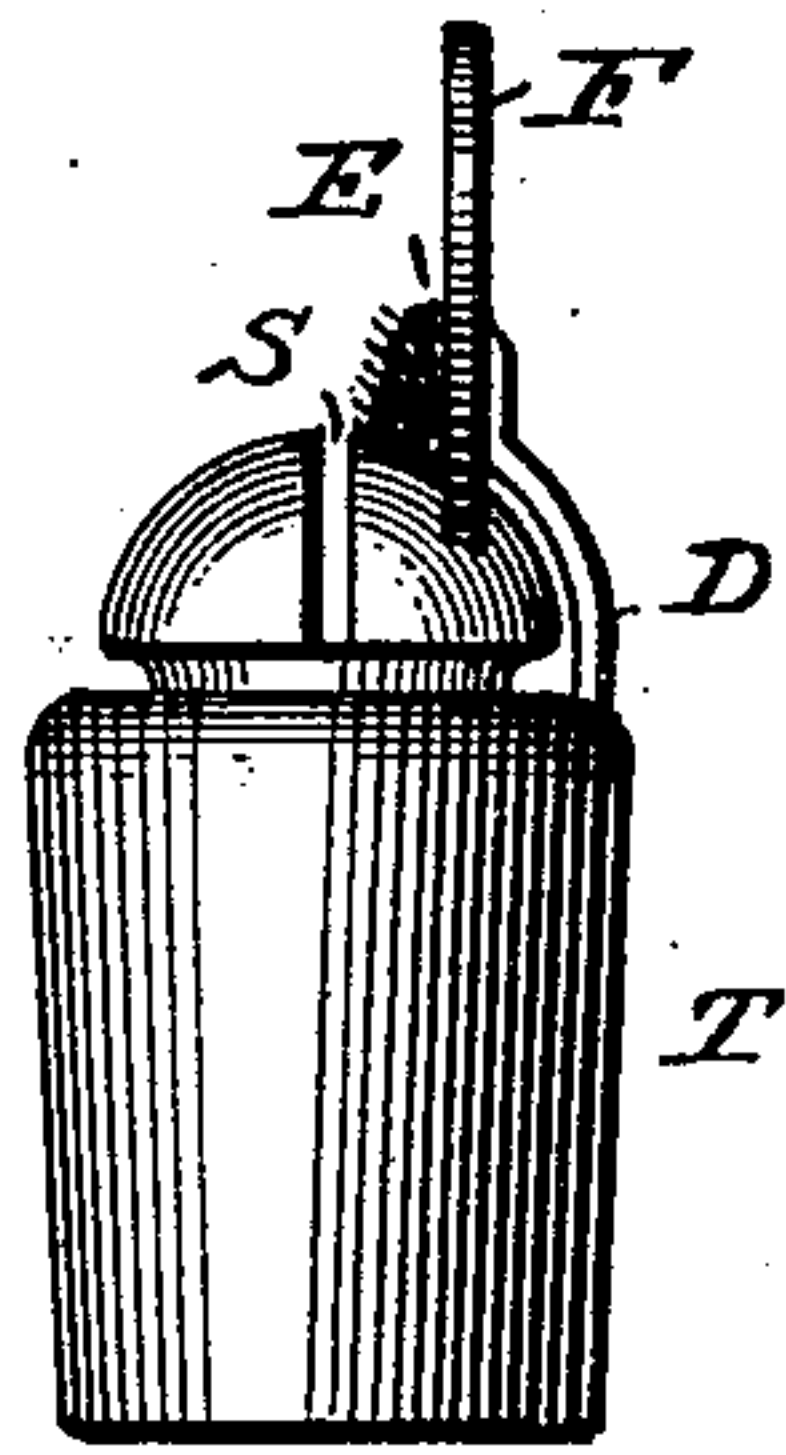


Fig. 3.



Witnesses
J. G. Hinkel
James W. Stevens

Inventor
William H. Porter
By [Signature]
Foster & Freeman
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM H. PORTER, OF NEW YORK, N. Y.

CATALYTIC GAS-LIGHTER.

SPECIFICATION forming part of Letters Patent No. 689,409, dated December 24, 1901.

Application filed August 20, 1896. Serial No. 603,378. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. PORTER, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Catalytic Gas-Lighters, of which the following is a specification.

My invention relates to catalytic gas-lighters, and has for its object to improve the construction and arrangement of said lighters; and it consists in a new holder for the catalytic material, together with a new arrangement of the material in connection with the holder, as will more readily be understood from the following description, taken in connection with the accompanying drawings.

In the drawings, Figure 1 is an enlarged front view of a lighter embodying my invention. Fig. 2 is a vertical section of the same. Fig. 3 is a side view of another form of lighter embodying my invention. Figs. 4, 6, and 7 are vertical sectional views of holders, showing different forms; and Fig. 5 shows the holder illustrated in Fig. 4 supplied with a lighting-tuft.

In the use of catalytic material for igniting gas I have found that it is practically necessary to provide some means for protecting the catalytic material against mechanical injury, as it is liable to be displaced or broken or otherwise injured in dusting, handling, &c. I have also found that it is desirable and advantageous to protect the catalytic material from the heat of the gas-flame after the gas has been ignited, as in doing this the fibers of the catalytic material are saved from a great many unnecessary expansions and contractions, and not only is the catalytic material preserved for longer use, but there also results another great advantage, in that the catalytic material does not glow while the flame is burning, but on the contrary remains dark, glowing only at the time the gas is first turned on (and being ignited, and this also conduces to the preservation of the material and constitutes an important improvement and advance in the art of catalytic lighting. I have discovered that these advantages, as well as other incidental advantages, which need not be recited, can be attained without in any way interfering with the luminosity

of the flame when lighted or with the active and practically instantaneous operation of the catalytic material in igniting the gas, and I have provided means for accomplishing this purpose, the general construction and arrangement of which I will now describe.

I provide a holder for the catalytic material which is preferably in the shape of a cup A—that is, it has a suitable recess for the reception of the catalytic material, which material is practically surrounded and inclosed by the cup, except upon one side, and that the side adjacent the gas-outlet of the tip. This cup-shaped holder A is preferably provided with a flange B, extending around the upper portion and sides of the opening of the cup to prevent downward flow of air, and in some instances it is desirable to add a rim C, extending at right angles, or substantially so, to the flange. This holder is preferably made separate from the tip T and is attached thereto or mounted thereon in any suitable way, and in the present instance I have shown the holder as provided with a shank D, fitting a recess *t* in the tip T, which tip in this case is made of two tubes telescopically united, the recess *t* being formed between the two tubes on one side. Other mechanical means of attaching the holder to the tip may, of course, be used. This holder or cup A is preferably made by being stamped out of a single piece of material, and in the form shown in Figs. 1 and 2 the parts *a* are bent inward to form the lower portion of the cup to receive the catalytic material, and they are conformed to fit the top or dome of the gas-tip. This holder not only forms a good mechanical protector for the catalytic material E, but also performs another most important function in that it prevents air from reaching the catalytic material from its rear, sides, and from above, and in this way I am enabled to maintain the catalytic material dark when the flame is ignited. Thus it will be seen that when the gas is first turned on and passes through the slot S in the tip it is mixed with air immediately in front of the exposed portions of the catalytic material E, and this causes the catalytic material to glow sufficiently to ignite the gas; but immediately upon ignition the gas-flame extends upward beyond the holder and par-

allel with the open face thereof, and owing to the construction of the holder and its location on the dome of the tip air is prevented from coming in contact with the catalytic material, and consequently the material does not glow, but remains dark so long as the flame is burning. It will thus be seen that the holder acts as a wall or protecting-surface to the catalytic material at all times except when it is desired to have the mixed air and gas in contact with the material for the purpose of ignition.

In Fig. 3 I have shown a modification of the holder, in which case it consists practically of a plate F, the lower part of which conforms to the dome of the holder, while it is held in position by the shank D, as before, and mounted on the face of the holder adjacent to the opening S of the tip is a tuft of catalytic material E. This plate F forms a protecting-wall for the catalytic material, and I have found it satisfactory in operation, although for some reasons I prefer the cup-shaped holder previously described. This cup-shaped holder may have a vertical flange B, as shown in Fig. 6, without the rim C, (shown in Fig. 2,) or the flange B may be inclined, as shown in Fig. 7, and when it is provided with a rim it forms a more perfect protection from the air, although all these forms accomplish the objects of my invention in a satisfactory manner.

The catalytic material I make use of is preferably that described in my pending application, Serial No. 547,172, and it is in the form of a tuft supported in the holder, and I do not deem it necessary to further describe it herein.

From this construction it will be seen that I provide a catalytic gas-lighter in which there is a tuft of catalytic material supported in a holder or cup in such a way as to prevent mechanical injury, which holder or cup is mounted on the gas-tip near the slot thereof and

such a distance therefrom that on turning on the gas the air and gas will come in contact with the tuft sufficiently to cause it to glow and ignite the gas, and when this is accomplished the catalytic material will be protected from the air, so that it will become and remain dark as long as the flame continues or while the gas is burning and is thus protected from injury due to unnecessary contractions and expansions, and the life of the material is greatly extended.

While I have thus described the main or essential features of my invention and pointed out what I consider to be the preferred way of embodying it, it will be understood that the details may be varied by those skilled in the art without departing from the spirit of my invention. Thus it should be observed that while I have referred to the gas-outlet as a "slot," any other form of gas-outlet that will produce a sheet flame, such as the openings in a Bray burner, will serve the same purpose, be an equivalent of the slot, and be included in or form a part of my invention.

What I claim is—

1. In a catalytic gas-lighter, a holder for the catalytic material consisting of a cup having a flange, substantially as described.

2. In a catalytic gas-lighter, a holder for the catalytic material consisting of a cup having a flange, and a rim projecting from the flange, substantially as described.

3. In a catalytic gas-lighter, a holder for the catalytic material consisting of a cup having a flange and provided with a shank, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. PORTER.

Witnesses:

EDWARD R. MEEK,
CLAUDE A. O. ROSELL.