

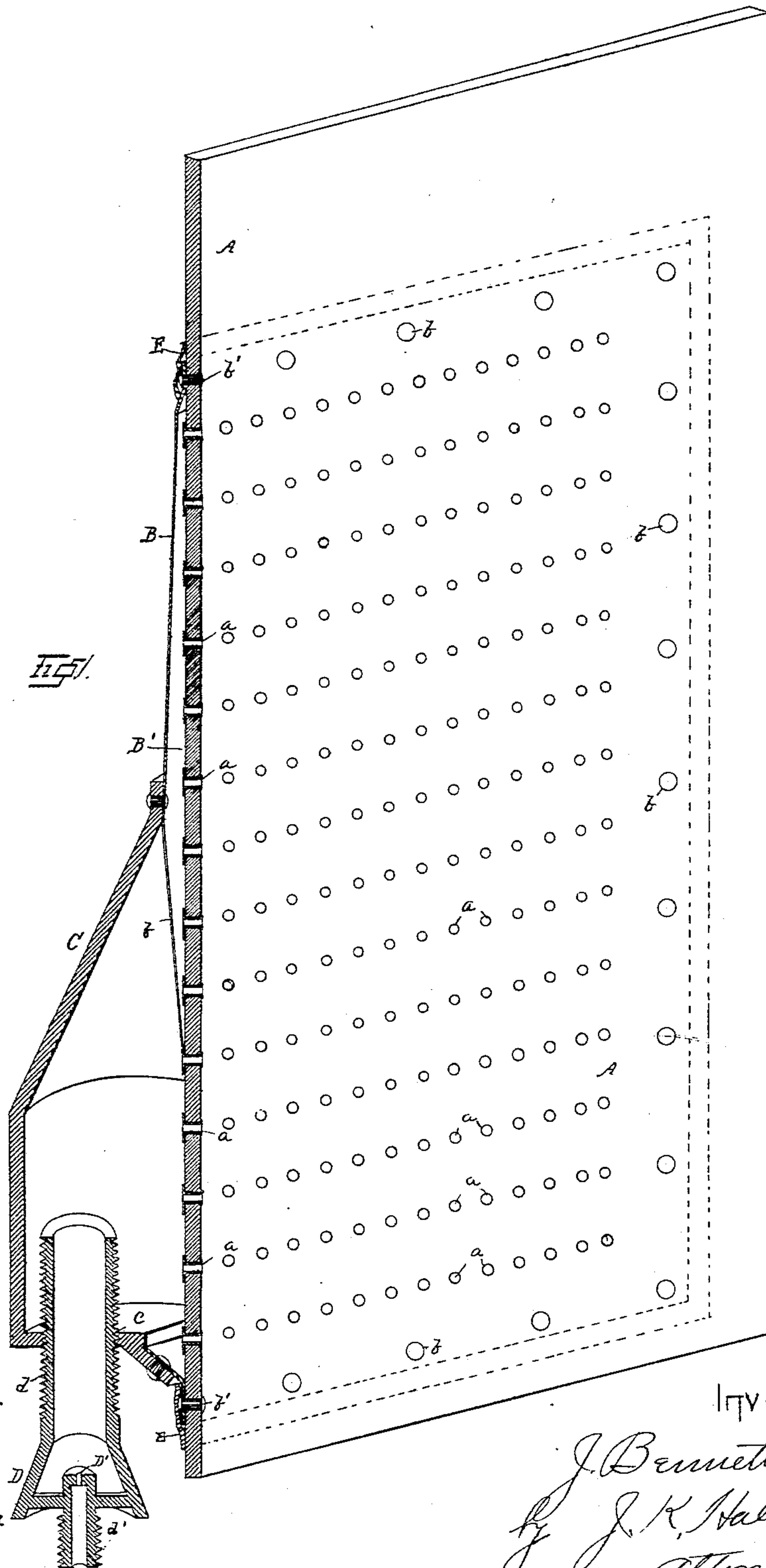
(No Model.)

2 Sheets—Sheet 1.

J. B. WALLACE.
FUEL GAS BURNER.

No. 504,821.

Patented Sept. 12, 1893.



WITNESSES:

Alford
Wm. Marley Jr.

INVENTOR:

J. Bennett Wallace
J. K. Hallock
Attorney

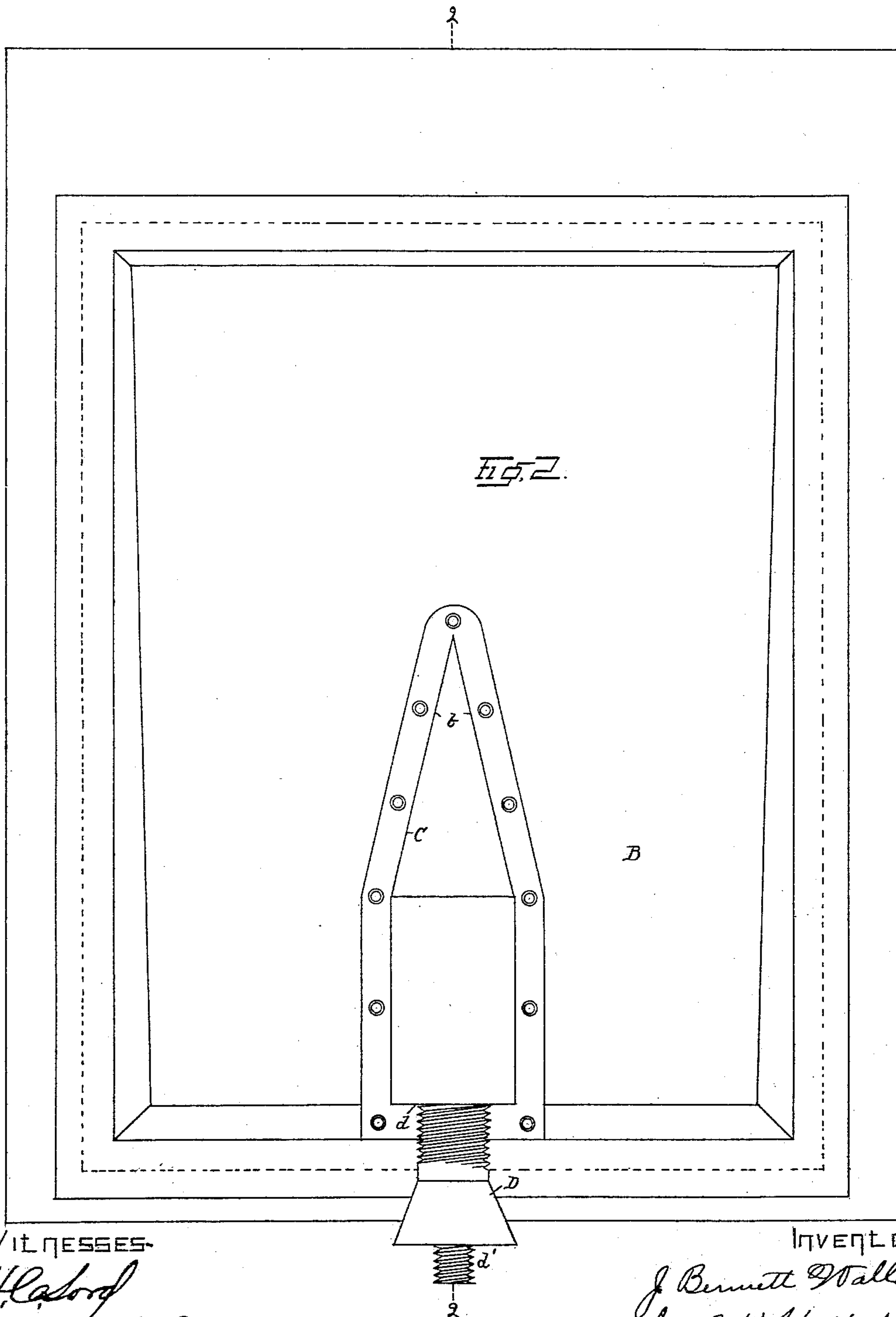
(No Model.)

2 Sheets—Sheet 2.

J. B. WALLACE.
FUEL GAS BURNER.

No. 504,821.

Patented Sept. 12, 1893.



WITNESSES-

H. Labord
W. Mark Jr.

INVENTOR

J. Bennett Wallace
by J. K. Hallock
Attorney

UNITED STATES PATENT OFFICE.

JACOB BENNETT WALLACE, OF ERIE, PENNSYLVANIA, ASSIGNOR TO THE
METRIC METAL COMPANY, OF SAME PLACE.

FUEL-GAS BURNER.

SPECIFICATION forming part of Letters Patent No. 504,821, dated September 12, 1893.

Application filed November 19, 1892. Serial No. 452,519. (No model.)

To all whom it may concern:

Be it known that I, JACOB BENNETT WALLACE, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Fuel-Gas Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to fuel gas burners, and consists in certain improvements in the construction thereof, as will be hereinafter fully described and pointed out in the claims.

The accompanying drawings illustrate my invention, as follows:

Figure 1 is a perspective in vertical transverse section on the line 2—2 in Fig. 2. Fig. 2 is a rear elevation of the burner.

The construction and operation are as follows: The burner is intended to be used in an open fireplace or stove, and the face of the burner is designed to fill the opening, like a fire board, except sufficient space at the top to allow of the passage of the products of combustion into the flue. The combustion takes place on the outer face of the burner, only, thus making an open visible fire, and when desired, loose fibers of asbestos may be attached to the face of the burner to give it an incandescent glow.

A is the board forming the face of the burner. It is made of asbestos paper-board and is preferably of considerable thickness, say about one-fourth inch. This face board A, is perforated with small holes, through which pass metallic jet tubes, *a*. These tubes must be quite small, as they serve as jets for the gas. They are found to be necessary, because the material forming the board is of such an infirm nature that simple openings cannot be maintained free and open, when made sufficiently small to serve properly. The object in using asbestos board in place of metal for the face board, is to prevent the conduction of heat rearwardly into the chimney place. B' is the gas-chamber from which the jet openings, *a*, are supplied. This chamber is formed by a metal sheet, B, that is properly formed and attached to the back

of the board, A, by rivets, *v'*. The form of the metal plate, B, is clearly shown in the drawings, where it will be seen that the chamber, B', is formed by the dish form of the plate, B, and that the concavity of the plate gradually diminishes in depth toward the top, thus making the gas chamber, B', wider at the bottom, than at the top.

Gas is supplied to the chamber, B', through the fixture, C, which is riveted to the plate, B, over the opening, *b*, therein at the base of the chamber, B'.

A mixer, D, screws into the fixture, C, at the opening, *c*, at its base. The mixer barrel has a running screw thread, *d*, of the same lead as the screw thread, *d'*, on the gas nipple, D', and the thread portion, *d*, is at least three or four times as long as the threaded portion, *d'*, and the fixture, C, is so formed, that the mixer barrel can be screwed up into the fixture the full extent of the thread, *d*.

The object of this construction is to enable connection to be made between the burner and the gas supply pipe (not shown) without the necessity of accurately measuring the distance between them before the burner is placed and without the use of a union. This is particularly desirable in connection with the burner shown, for as the burner is intended to fill, as nearly as possible, the entire opening of a fire place or open front stove, it is desirable that the connection between the supply pipe that has its mouth at or near the hearth, and the mixer which should be attached to the burner, be as short as possible, and enables the burner to be in close proximity to the hearth, the only waste space being the length of the screw thread, *d'*, on the nipple, D'.

The manner of forming the connection is as follows: The mixer barrel is screwed up into the fixture, C, so as to clear the top of the supply pipe. The burner is then put in place with the nipple, D', directly over the mouth of the supply pipe. The nipple thread *d'*, is then screwed into the supply pipe and, of course, the thread, *d'*, at the same time runs out of the fixture, C, to the same extent, that the screw, *d'*, has entered the supply pipe. The plate, B, as before stated is riveted to the board, A, by rivets, *b'*, and while these rivets

should be sufficiently numerous to make a tight joint between the plate B, and the board, A, nevertheless, I have taken the precaution to thoroughly cement over the joint all the way around the plate, a strip, E, of cloth, leather or other suitable material, so as to insure against leakage of gas under the flange of the plate.

The object in making the chamber, C', narrower as it approaches the top of the burner, as above described, is that the volume of gas diminishes as it approaches the top of the burner to the extent of the amount that has passed through the lower jet tubes, *a*, and, hence, the area of the chamber should diminish toward the top so as to maintain a substantially even flow of gas through all the jets.

What I claim as new is—

1. In a fuel-gas burner, the combination of a fire board, A, formed of asbestos paper-board, the metallic jet-tubes, *a*, through said board, the metallic back plate, B, attached to said board and forming the gas chamber, B', directly back of the jet openings, *a*, the fix-

ture, C, over the opening, *b*, through the plate B, into the chamber, B', at its base, and the mixer, D, for connecting the fixture C, with the gas supply pipe.

2. In a fuel gas-burner, the combination of a dished metallic plate, B, a front plate or board, A, of asbestos paper, secured to the rim of said dished plate, so as to form a gas chamber, B', metallic jet tubes through the said asbestos board, a fixture, C, forming a supply entrance to said chamber at its base, and having a screw threaded opening, *c*, through its lower wall for connecting with a mixer, the mixer, D, having the screw thread, *d*, on its barrel for connecting with the screw thread, *c*, and the nipple, D', carried by said mixer, and having thereon a screw thread, *d'*, of the same lead as the screw thread, *d*.

In testimony whereof I affix my signature in presence of two witnesses.

J. BENNETT WALLACE.

Witnesses:

H. C. LORD,

WM. MARKS, Jr.