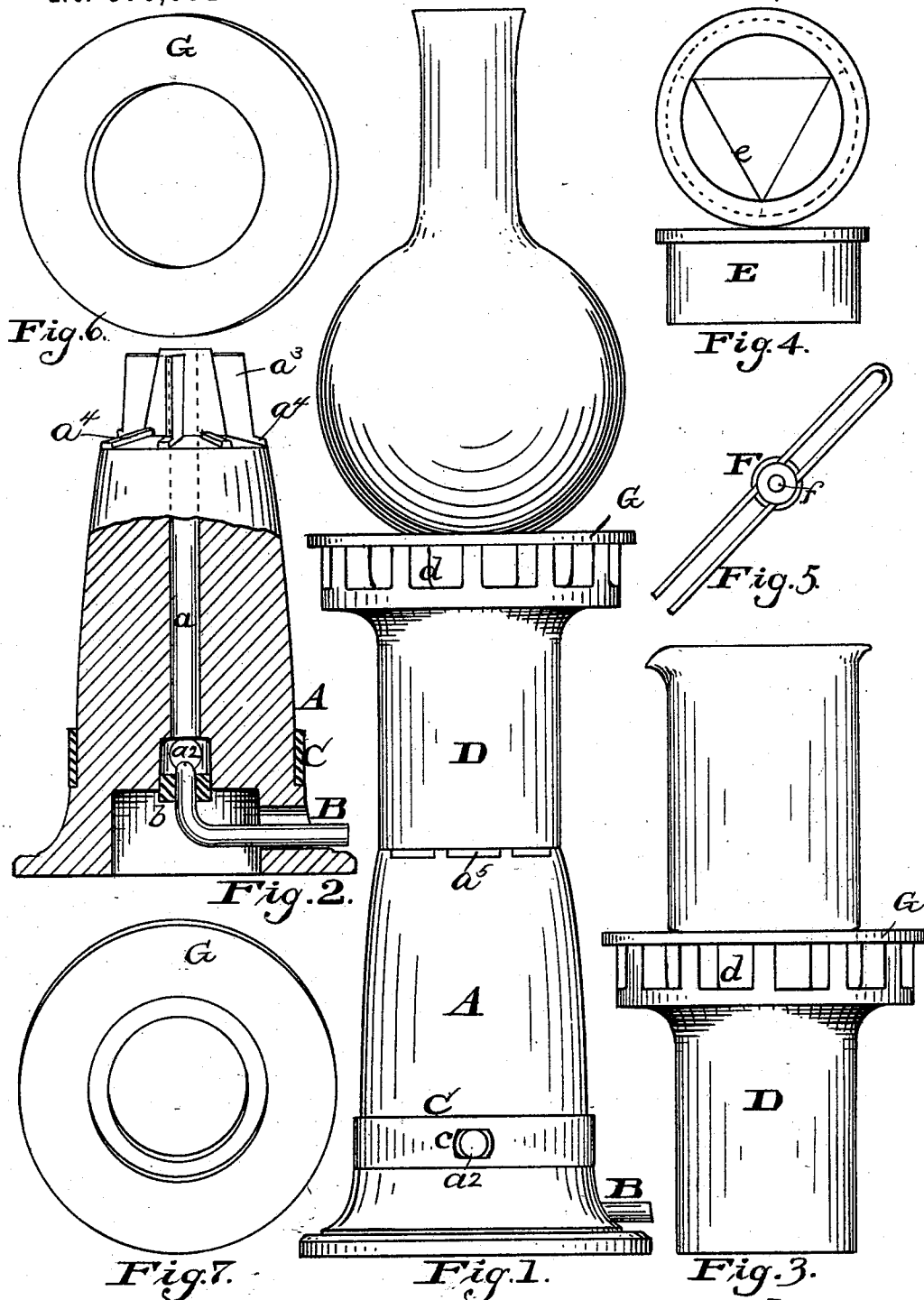


(No Model.)

W. H. CHADDOCK.
BUNSEN BURNER.

No. 570,084.

Patented Oct. 27, 1896.



Witnesses,
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UNITED STATES PATENT OFFICE.

WILLIAM H. CHADDOCK, OF CLEVELAND, OHIO.

BUNSEN BURNER.

SPECIFICATION forming part of Letters Patent No. 570,084, dated October 27, 1896.

Application filed February 6, 1895. Serial No. 537,467. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. CHADDOCK, a citizen of the United States, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Bunsen Burners, of which the following is a specification.

This invention relates to Bunsen burners, and has for its object to provide an incorrodible, clean, and durable burner; and it consists in constructing the several parts comprising the complete burner of porcelain, glass, and fire-clay, substantially as herein-after described, and pointed out in the claims.

The annexed drawings and the following description set forth in detail one mechanical form embodying the invention, such detail construction being but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure 1 represents a side view of my improved gas-burner, illustrating a retort or flask in position upon an asbestos ring on the top of the burner; Fig. 2, a side elevation, partly in section, of the lower portion of the burner; Fig. 3, a side view of the upper portion of the burner, illustrating a beaker in position upon an asbestos ring on the top of the burner; Fig. 4, a side view and a plan view of an extension used for ignitions and fusions; Fig. 5, a plan view of the flame-spreader, and Figs. 6 and 7 views of asbestos rings employed in connection with the burner.

The burner consists of a lower portion A, preferably made of porcelain and having an axial bore a , the lower portion of which is enlarged. The upper end of the lower portion of the burner is formed with upwardly-projecting lugs a^3 , surrounding the axial bore, and with radiating ribs a^4 , which extend from the lugs and in the spaces between the lugs. Said lugs form a reduced neck, over which the upper portion D of the burner may be fitted with its lower edge resting upon the ribs in such manner that air-inlet openings a^5 will be formed at the junction between the two portions of the burner. The upper portion of the burner is preferably made from fire-clay, and the enlarged top of said upper portion has an annular series of lugs d , upon which the asbestos rings employed for sup-

porting the vessels to be heated over the burner may rest. The lower portion of the burner has one or more air-inlet openings a^2 near the lower end of the axial bore, and a ring C is fitted to the lower portion or base of the burner and is formed with registering openings c , so that the size of the air-inlet openings a^2 may be increased or decreased by turning the ring upon the base. A gas-burner tip B, preferably formed of glass, is inserted through a hole in the side of the base, and has its upwardly-bent inner end secured in the lower end of the axial bore by means of a cork or similar perforated plug b . Asbestos rings G are used for supporting the vessels to be heated over the burner, and may have their central openings suitably shaped to admit of their supporting the various-shaped vessels. For purposes of ignition or fusion I employ a short extension E, of fire-clay, having a triangular frame e , of platinum wire extended within it, for the purpose of supporting the crucible or other vessel in which the fusion is to be performed. A flame-spreader F may be employed for the purpose of producing a laterally-spread flame, and said spreader consists of a doubled wire, to the middle of which metal disks are clamped by means of a rivet f .

The flame-spreader may be placed across the top of the burner with the ends of the double wire resting in diametrically opposite spaces between the lugs d .

Gas-burners of this class, commonly called "Bunsen" burners, when employed for laboratory use and made of metal, are liable to corrode from the action of the flame and by the action of strong acids or other chemicals which may accidentally come in contact with the metal of the burner. A burner made from porcelain and fire-clay will not be affected by the heat of the flame, and will be less liable to be affected by the action of chemicals than metal burners. As, however, it is desirable to form a burner of this style with air-inlet holes about the middle of the vertical passage of the same, it would be rather difficult to manufacture such a burner of such refractory material with such air-inlet holes if the burner was made integral in one piece. For that reason I make the burner in two pieces, a base and a top piece, and form the upper

end of the base with the lugs and ribs, which will sufficiently raise the top piece above the upper end of the base to form the desired air-holes. I thus obtain a practically indestructible burner which will effectually accomplish its purpose and which will admit of the proper mingling of air and gas to produce a hot flame and perfect combustion, such as is required for a burner of this style.

Other modes of applying the principle of my invention may be employed for the mode herein explained. Change may therefore be made as regards the mechanism thus disclosed, provided the principles of construction set forth, respectively, in the following claims are employed.

I therefore particularly point out and distinctly claim as my invention—

1. In a gas-burner of the Bunsen type, the combination with a base portion composed of refractory material formed at its upper end with a reduced neck and with projections upon the shoulder formed by such neck, of a top portion of refractory material having its lower end fitted upon said neck and resting

upon said projections whereby air-inlet openings are formed, and having at its upper end suitable means for supporting the vessels or objects to be heated, substantially as set forth.

2. In a gas-burner of the Bunsen type, the combination with a base composed of refractory material having a gas-tip at the lower end of its axial bore and having controllable air-inlets in its lower portion and formed with upwardly-projecting studs around the upper end of its axial bore and with radiating ribs upon its upper end, of a top portion of refractory material having its lower end fitted upon said studs and resting upon said ribs and having an annular series of lugs upon its widened upper end, substantially as set forth.

3. A flame-spreader for laboratory gas-burners, consisting of a doubled wire having metallic disks clamped upon its middle, substantially as set forth.

WILLIAM H. CHADDOCK.

Witnesses:

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